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ABSTRACT

The project described in this report was designed to: (1) address the lack of adequately trained faculty members needed to introduce geriatrics within colleges of pharmacy, (2) facilitate the use of existing materials within the educational program provided pharmacy students, (3) teach a geriatric pharmacy course twice at each of Texas' three colleges of pharmacy in 1989, (4) evaluate course effects on students' attitudes, knowledge, and ability to serve as pharmacotherapeutic consultants to physicians and patients, and (5) devise a plan to assess former course takers' and physicians' interactions that may lower patient risk of adverse drug reactions. Among project achievements was development and presentation of a geriatric pharmacy course 5 times to a total of 107 third- and fourth-year pharmacy students at the 3 schools. Major products included: a documented process for institutional development in geriatrics, a strategy for the adaptation of existing instructional resources in geriatrics for use in colleges of pharmacy, a cadre of faculty members prepared to present geriatric information to pharmacy students, and published monographs and manuscripts describing the curriculum and faculty development process. Positive changes in student attitude toward older people were also effected. Extensive appendixes include quarterly progress reports, the course outlines, the attitude survey, and statistical data. Contains 54 references. (DB)

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# Final Report

# Statewide Project to Include Aging Content in Colleges of Pharmacy

Texas Consortium of Geriatric
Education Centers and
Huffington Center on Aging
Baylor College of Medicine
Houston, Texas

HE 023 727

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An Administration on Aging Project
May 1990

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TCGEC

Final Report

# STATEWIDE PROJECT TO INCLUDE AGING CONTENT IN COLLEGES OF PHARMACY

*Prepared by the Staff of*
*The Texas Consortium of Geriatric Education Centers*

Administration on Aging
Grant No. DHHS 06AM0416/01

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# STATEWIDE PROJECT TO INCLUDE AGING CONTENT IN COLLEGES OF PHARMACY

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# PROJECT ABSTRACT

The Administration on Aging (AoA)-sponsored project, "A Statewide Effort to Include Aging Content in Colleges of Pharmacy," was designed to (1) address the lack of adequately trained faculty members needed to introduce learning experiences in geriatrics within colleges of pharmacy, (2) to facilitate the incorporation of existing resource materials used within didactic and experiential learning activities provided pharmacy students, (3) teach a geropharmacy course twice at each of Texas' three colleges of pharmacy in 1989, (4) evaluate the results on student's attitudes, knowledge and ability to serve as pharmacotherapeutic consultants to physicians and their patients, and (5) devise a plan to assess former course takers' and physicians' interactions that may lower patients' risk of adverse drug reactions. The need for this project was based upon the demographics and epidemiology of the U.S. and Texas' aging population, the lack of sufficient numbers of health professionals in geriatrics, and the dearth of appropriate curriculum content on aging in Texas' three schools of pharmacy.

Under the auspices of the Texas Consortium of Geriatric Education Centers (TCGEC), Baylor College of Medicine and Texas' three pharmacy colleges at Texas Southern University, University of Houston, and the University of Texas at Austin collaborated to improve pharmacy education concerning the care of Texas' elderly population. The following objectives were completed: identification of the knowledge and skillbase essential to pharmacists' role in geriatric care, analysis of existing educational materials for appropriate content, preparation of pharmacy faculty members to teach content to students, individualized courses developed at each college, geriatric elective courses taught twice during the 20-month project at each college, and determination of any modification of 107 students' attitudes and knowledge toward aging due to their participation in the offered courses.

A series of three instruments were used in conjunction with the course offerings to pharmacy students attending Texas Southern University, the University of Houston, and the University of Texas at Austin (see Appendix F., Survey of Facts and Attitudes on Aging). The instruments selected included: Kogan's Attitudes Toward Old People Scale, Palmore's Facts on Aging Quiz, and the 41-item Adjective Checklist under development at Baylor College of Medicine. Each of the instruments was administered prior to and after completion of the model geriatric pharmacy course offered students enrolled at the three participating institutions. The course was presented five times during the spring and fall semesters; twice at both the University of Houston and the University of Texas and once at Texas Southern University. Some 107 third and fourth year pharmacy students participated in these courses. The analysis of course performance is based upon complete data provided by 99 course participants.

This dissemination plan will, hopefully, result in the process and product being adopted by educators in other colleges of pharmacy or at various other GECs. It is also hoped that the published documents will be used to effect curriculum change at other colleges of pharmacy and that such colleges will be encouraged to develop advanced coursework and clinical experiences in geriatrics. The ultimate desired end is that more of America's older population will benefit from the therapeutic results of their prescriptions and, concomitantly, that the potential of reducing preventable adverse drug reactions can be realized. The outcomes include a documented process of development of curricular course materials and evaluative data regarding the incorporation of elective courses into the three colleges' curricula. Results of this project will be shared with the nation's 74 pharmacy colleges and other health-related institutions and organizations.

## POLICY \ PROGRAM PAPER

Accrued benefits from the Texas "Statewide Project to Include Aging Content in Colleges of Pharmacy" include: (1) increased faculty and students' fund of knowledge in the general and specific areas of geriatrics; (2) active participation of multidisciplinary faculty in the teaching of sound clinical and management approaches about medication use by the elderly; (3) enrichment and enhancement of curricula from new knowledge available for the education of future pharmacists; (4) development of liaisons between faculty and practitioners and colleges and alternative care settings for the continued use by the three colleges; (5) increased teaching sites for field practicum experiences in nursing homes, home health agencies, geriatric evaluation units and adult day care centers; (6) increased expertise of the faculty that may attract research funds to further the colleges' institutional plans; (7) heightened importance of interdisciplinary collaboration in patient care; (8) refinement and development of career opportunities; (9) promotion of educators serving as role models and mentors for their students; (10) sensitization of faculty and students' to the broadening role of pharmacy practice as the locus of care for the elderly changes; and (11) increased dissemination of knowledge about changes in federal guidelines as they apply to the future of pharmacy practice.

Based on the foregoing, policy implications for the public and private sectors and for all older Americans fall into at least these three areas: preparation and oversight of health-care providers, sale/distribution of prescribed and OTC drugs, and consumer education of safe, efficacious drug use.

The basic preparation of such health care prescribers as physicians, nurses, physician assistants, dentists, and the pharmacist-provider should include the salient features of gerontologic/geriatric knowledge pertinent to understanding pharmacotherapeutics in the elderly, control of polypharmacy, prevention of adverse drug reactions, and promotion of appropriate drug therapy. In all U.S. colleges of pharmacy such basic information should be included. (See Geriatric Curriculum Considerations by Lamy, P. in Appendix G). The second opportunity to influence prescribers and providers is in the oversight-regulatory process: initial licensure, periodic continuation of certification of individuals and sites of care. Knowledge of appropriate information regarding geropharmacy should be exhibited upon examination. Policies regarding points-of-sale or distribution of prescribed and over-the-counter drugs could include more opportunities between providers and recipients to discuss taking their drugs safely in the manner most conducive to providing the desired results. The basic policy of consumer education should focus initially on a correct diagnosis and prescription: thus, this responsibility devolves on physicians -- more communication with the patient is the key. Next, the policy should include a focus on the provider, and finally on the consumer taking into consideration the factors most associated with compliance -- socioeconomic characteristics, literacy, cognitive capacity, wherewithal factors of access and physical capacities, frequency of review with pharmacists and physicians, and reward factors.

The project's significance in terms of both public and private sector policies and programs for older Americans is simply this: with better communication and decision-making between and among the three parties to drug therapy, better patient outcomes will be achieved and the degree of being at risk of adverse drug reactions will be markedly reduced; thus, older Americans will be spared the pain, suffering, and expense of unnecessary readmissions and sequelae treatment.

# DISSEMINATION AND UTILIZATION PAPER

The major products to emerge from the project include: (1) a documented process for institutional development in geriatrics; (2) a strategy for the adaptation of existing instructional resources in geriatrics for use by colleges of pharmacy; (3) a cadre of faculty members in three colleges of pharmacy prepared to present geriatric information to pharmacy students; and (4) published monographs and manuscripts describing the curriculum and faculty development process. The dissemination and utilization phase of the project consist of four distinct components.

**Component One** entailed the utilization of force-field analysis and critical incident analysis to map the curriculum and ascertain points for knowledge and skill infusion. This effort began with a review of performance requirements, competencies and behavioral objectives specific to the role of pharmacists in geriatrics. Descriptive information was gathered regarding the courses taught, by semester and year, and the overall curriculum requirements at the three pharmacy colleges in Texas. Institutional procedures and mechanisms either impeding or facilitating the inclusion of new course offerings or aging-related content in the curriculum were also considered.

**Component Two** involved the delineation of procedures to dismantle the "elective" course components within each of the institutions and insert the pilot-tested instructional exercises into established courses. This process involves coordination of geriatric content between courses to minimize repeated lectures in several courses and to also expose students to a wide range of issues central to a complete understanding of geriatric pharmacy. Trained faculty were utilized to ensure long-range exposure of pharmacy students to content essential to their role as pharmacotherapeutic consultants in geriatrics and to their expanded role in delivering optimum service to physicians and their elderly patients.

**Component Three** consisted of a plan to present the findings of this project at various state and national meetings of such organizations as the Academy of Pharmacy Research Scientists (January 19-21, 1990, Washington, D.C.), American Pharmacy Association (March 10-14, 1990, Washington, D.C.), Southern Gerontological Society (March 21-24, 1990, Orlando, Florida), American Association of College Pharmacists (July 8-11, 1990, Salt Lake City, Utah), 50th Congress of the Federation Internationale Pharmaceutique, (September 6, 1990, Istanbul, Turkey), National Association of Boards of Pharmacy (October 4-7, 1990, St. Louis, Missouri), American Society of Consultant Pharmacists (November 14-18, 1990, San Antonio, Texas), and the Gerontological Society of America (November 16-20, 1990, Boston, Massachusetts). An example of an abstarct submitted for these meetings is included in Appendix G. These presentations were used to encourage the continuing professional development of pharmacists in geriatrics. Dr. Robert Roush, Project Director, also described the AoA pharmacy grant on a Birmingham, Alabama PBS TV program entitled, "Advances in Health -- The Longevity Revolution" on September 23, 1989. The final report was also distributed to each of the thirty-eight Geriatric Education Centers (GECs) in the U.S. and to the nation's 74 colleges of pharmacy.

An overview of the project was presented to federal officials by Drs. Roush and Shepherd and Mr. Carl Fasser in Dallas, Texas on February 20, 1990. Also, the TCGEC, along with the Administration on Aging, Public Health Service (PHS) VI, and the Texas Primary Care Association offered a one-day conference entitled **Drug Prescribing, Dispensing, and Utilization of Medication for the Elderly** on April 30, 1990 at Baylor College of Medicine in Houston, Texas. Comprised of faculty from the three participating pharmacy colleges, the program was aimed at selected care providers in community and migrant health centers in the five-state area of PHS-Region VI. The program was offered to health professions educators, practitioners and students interested in the fields of gerontology and geriatrics. What began as an invited program for 60 physicians, nurses, and pharmacists within the DHHS Region VI National Health Service Corp Clinics developed into a program attended by approximately 150 persons of whom 79 were pharmacists. Over 6000 program brochures were mailed to professionals throughout the state and surrounding areas. Topics addressed the clinical manifestations and consequences of polypharmacy, therapeutic drug monitoring, optimizing drug therapy, and the design of educational programs to promote drug compliance. There is current discussion to make this an annual event. Continuing education credit was offered to physicians, physician assistants, nurses, pharmacists and social workers.

Finally, **Component Four** involved the submission of manuscripts for publication in the American Journal of Pharmaceutical Education, The Consultant Pharmacist, American Pharmacy, Journal of Geriatric Drug Therapy, Drugs, Gerontology and Geriatrics Education, and/or the Journal of Pharmacy Practice.

Through the conjoint efforts of the three co-investigators from the pharmacy colleges at Texas Southern University, University of Houston and the University of Texas-Austin and the TCGEC project staff, a "critical mass" of health professions educators marshalled the faculty and materiel resources to update, adapt and create curriculum materials in gerontology and geriatrics for undergraduate pharmacy students. Armed with greater information in gerontology, geriatric medicine, and curriculum implementation, this cadre of faculty from each of the three colleges have become better prepared to provide the instructional experiences necessary to address the needs of elderly individuals and these faculty members are becoming the leaders at their institution in geriatric pharmacy research and/or clinical practice.

This dissemination plan will, hopefully, result in the process and product being adopted by educators in other colleges of pharmacy or at various other GECs. It is also hoped that the published documents will be used to effect curriculum change at other colleges of pharmacy and that such colleges will be encouraged to develop advanced coursework and clinical experiences in geriatrics. The ultimate desired end is that more of America's older population will benefit from the therapeutic results of their prescriptions and, concomitantly, that the incidence of preventable adverse drug reactions will be dramatically reduced.

# EXECUTIVE SUMMARY

In response to an announcement in the Federal Register (vol. 52, no. 250) on Wednesday, December 30, 1987, regarding priority area 9.2B, Aging Content in Professional Academic Training, Dr. Robert Roush, Principal Investigator, submitted a grant application entitled "A Statewide Project to Include Aging Content in Schools of Pharmacy" on **March 16, 1988** to the Administration on Aging pursuant to the FY88 Coordinated Discretionary Funds Program. Dr. Roush responded to a request to clarify information from Sue Wheaton, Grant Officer, Division of Training and Development, Office of Program Development, on July 22, 1988. This information addressed budget adjustments, a plan to network with AAA offices, the role of minority elders and faculty in the proposed project, and a plan to disseminate the model.

Upon receipt of the notice of award on **September 21, 1988**, the project commenced in September 1988 and proceeded over the next 17 months. On January 16, 1990 notification was received of a no cost extension of budget and project periods until **April 30, 1990**. The grant award was made pursuant to the legislative authorization of the Older Americans Act of 1965, Title IV, Public Law 89-73, as amended. Anne Bayne Jones, Aging Services Program Specialist at the AoA, indicated the procedure for quarterly progress reporting and gave us the requisite guidelines for preparation of the final report in correspondence dated December 14, 1988. Stasys Zukas was assigned as the Project Officer to monitor and assist in the programmatic activities of the project.

OBJECTIVES. This AoA-sponsored project was designed to (1) address the lack of adequately trained faculty members needed to introduce learning experiences in geriatrics within colleges of pharmacy, (2) to facilitate the incorporation of existing resource materials used within didactic and experiential learning activities provided pharmacy students, (3) teach geropharmacy course twice at each of Texas' three colleges of pharmacy in 1989, (4) evaluate the results on student's attitudes, knowledge and ability to serve as pharmacotherapeutic consultants to physicians and their patients, and (5) devise a plan to assess former course takers' and physicians' interactions that may lower patients' risk of adverse drug reactions. The need for this project was based upon the demographics and epidemiology of the U.S. and Texas' aging population, the lack of sufficient numbers of health professionals in geriatrics, and the dearth of appropriate curriculum content on aging in Texas' three schools of pharmacy.

OPERATIONAL DESIGN. The first two months of the project focused on implementing the grant award with the institutional representatives and consultants, designing workscopes for the three pharmacy colleges (see Final Report, Appendix B), executing subcontracts ($35,624.00 each) with budget officers at the three institutions, and establish a task accomplishment oversight plan (see Final Report, Appendix A). On **November 2, 1988**, the first project meeting was held at the Intercontinental Marriott Hotel to review the following: (1) the responsibilities of the content review committee and panel of consultants, (2) discuss details of the grant award, subcontract management, and the use and payment of consultants, (Each member of the panel of consultants was to render five days of consultation; as chairman of the panel, Dr. Yanchick agreed to serve an additional two days to include a second onsite visit and the submission of final recommendations regarding course content and adoption.) (3) establish competencies and behavioral objectives specific to the pharmacist's role with the elderly, (4) explore current curriculum offerings at Texas' three colleges of pharmacy, the University of Houston, Texas Southern University and the University of Texas at Austin, (5) initiate course design in relation to content, scope, sequence, scheduling, faculty development, mode of presentation, and instructional methodology, and (6) identify criteria to guide the evaluation of courses and students.

In addition to the above, the group reviewed national professional recommendations, catalogue descriptions of the three colleges' curricula, courses taught by semester/year at each college, mechanisms governing course implementation, institutional procedures (timelines and materials) necessary for the introduction of new course offerings, measurable project endpoints, and criterion measures to assess project effectiveness. Each institutional co-investigator was encouraged to consider timelines necessary for the preparation of course descriptions, objectives, content outlines, faculty assignments, and student notification of the course offerings. The process of selecting and orienting instructors to be involved in the teaching of the model curriculum also began at this time.

Modifications to the draft core course outline (see Final Report, Appendix D) were made during November and December, 1988. Dr. Roush spoke at length with Victor Yanchick, PhD, Dean and Professor of Pharmacy, College of Pharmacy, The University of Oklahoma, by phone in early November; project staff received comments from the other two consultants, Peter Lamy, PhD, ScD, Professor and Assistant Dean, Geriatrics, and Director, The Center for the Study of Pharmacy and Therapeutics for the Elderly, University of Maryland at Baltimore, on **November 28, 1988** and from Mark Stratton, PharmD, Associate Professor of Pharmacy, Director, New Mexico Geriatric Education Center, on **December 14, 1988**. Drs. Van Duyn, Stratton, Roush and Ms. Teresa Wright also met with Dr. Lamy at the Gerontological Society of America in San Francisco on November 19, 1988.

On **February 15-17, 1989**, the TCGEC sponsored a professional development institute for over 100 health professionals entitled "Addressing Health Care Issues of the Elderly" in Houston, Texas. Faculty members who were to teach the proposed course at the three pharmacy colleges were invited to attend. The institute addressed four general content areas: multidimensional assessment of older individuals; evaluation of common clinical problems of the aged; management planning; and biomedical ethics. Each attendee was given a seven-unit publication entitled The Learning Module in Geriatrics written by Carl Fasser and Quentin Smith. The seven units cover the biological dimensions, disease processes, sociological aspects, health assessment, psychological changes, health promotion, and pharmacology as it relates to the elderly population. The faculty were taught how to use this instructional resource guide to enhance their proposed curriculum in geriatrics.

The second meeting of the three institutional representatives and consultants was held on **June 1, 1989** again at the Intercontinental Marriott Hotel to: (1) review results of the pilot test course at the University of Houston, (2) finalize the model curriculum for Texas Southern University and University of Texas at Austin, (3) engender reactions of consultants to the proposed courses and expected core competencies and (4) clarify the scope of dissemination activities. The project consultants stressed the importance of gerontological principles, communication skills, and the role responsibilities of pharmacists.

INSTRUCTIONAL RESULTS. After incorporating suggestions from the consultants, Dennis Helling, PharmD, Professor and Chairman, Associate Dean for Clinical Affairs, College of Pharmacy, University of Houston, offered **PHARM 5397, Pharmacy and the Geriatric Patient**, to 24 students in the spring semester of 1989. Marvin Shepherd, PhD, Chairman, Pharmacy Administration Division, College of Pharmacy, The University of Texas at Austin, taught **PHR 358, Drugs in the Elderly** to 23 students and Otto Van Duyn, PhD, Associate Professor, College of Pharmacy and Health Sciences, Texas Southern University, offered a seminar series to seven students during the summer term of

1989. All three co-investigators taught a course during the fall semester, 1989; University of Houston enrolled 24 students, University of Texas at Austin enrolled 17, and Texas Southern University offered **PHARM 430, Geriatric Pharmacy Practice**, for the first time to 12 students. Due to the faculty expertise available at that institution, the hours available in the curriculum, and the clinical practice resources accessible to faculty at each college, there were variations in content to each course (see Appendix E, Final Report, Course Outline). Overall, **107 students** participated in the courses offered by the three institutions. The three pilot-test courses were followed by an elective credit course. Faculty involvement in the elective was nurtured without a challenge to or restriction placed on faculty members' course responsibilities. In every institution participating faculty were able to demonstrate enrollment figures to their chairman and dean indicating increasing support and interest in geropharmacy learning experiences.

In January 1990, project staff evaluated data from the student evaluations. A series of three instruments were used in conjunction with the course offerings to pharmacy students attending Texas Southern University, the University of Houston, and the University of Texas at Austin (see Appendix F., Survey of Facts and Attitudes on Aging). The instruments selected included: Kogan's Attitudes Toward Old People Scale, Palmore's Facts on Aging Quiz, and the 41-item Adjective Checklist under development at Baylor College of Medicine. Each of the instruments were administered prior to and after completion of the model geriatric pharmacy course offered students enrolled at the three participating institutions. The course was presented five times during the spring and fall semesters; twice at both the University of Houston and the University of Texas and once at Texas Southern University. Some 107 third and fourth year pharmacy students participated in these courses. The analysis of course performance is based upon complete data provided by 99 course participants.

DISSEMINATION RESULTS. The dissemination phase of the project commenced over the period of January through April, 1990. Project staff and co-investigators presented the project findings at eight state and national professional meetings, sponsored a one-day conference entitled "Drug Prescribing, Dispensing, and Utilization of Medication for the Elderly" on April 30, 1990, and made plans to submit project conclusions for publication in appropriate journals (see Dissemination and Utilization Paper). The final report was mailed to U.S. Geriatric Education Centers (GECs) and to 74 colleges of pharmacy across the nation. A listing of the GECs and the U.S. pharmacy colleges are included in Appendix G of the Final Report.

ACKNOWLEDGEMENTS. This AoA project drew upon the administrative arrangements of the TCGEC which was established in October 1985 with the special responsibility to provide educational, technical, administrative, and and consultative services to further develop and expand activities in gerontology and geriatrics throughout Texas. Headquartered at Baylor College of Medicine, the consortium is comprised of ten academic institutions which are located in distinct geographic areas of the state. Each of the participating colleges of pharmacy are institutional members of the consortium. Typically, the TCGEC has focused its faculty development program on thirteen health-related disciplines. This AoA effort constituted a discipline-specific one in a profession vital to geriatrics: pharmacy.

Management of the project over the 20 months is evidenced by the quarterly progress reports contained in Appendix C of the Final Report. Project staff coordinated personnel, fiscal, and educational resources; designed and implemented the Professional Development Institute; monitored expenditures against the institutional subcontracts; and prepared the required reports indicating the accomplishments of the project.

As principal investigator, I would like to thank all those involved in the planning and conduct of this important project, especially my staff of Ms. Teresa Wright, Mrs. Dorothy Reel, Mr. Carl Fasser, and Mrs. Iris Cox.

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May, 1990

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# INTRODUCTION

Data from the U.S. Census Bureau show the estimated population of Texas in 1989 to be 16,789,000, up 18% since 1980. This increase represents the fourth highest percentage growth among all fifty states. The number of elderly persons in Texas is likewise growing rapidly. There were 1.9 million Texans over age 60 or older in 1980. Projections indicate 2.4 million older Texans for 1990 and 2.6 million for the year 2000. Along with these observations, this increasing population of older people exhibit a disproportionate use of health care resources. That portion of the U.S. population over the age of 65 accounts for more than 33% of physicians' time, 25% of medications, and 40% of the acute hospital admissions (National Institute on Aging Report, 1984). Based upon projected increases in the number of older Texans and their anticipated patterns of disability and health services utilization, academic institutions in Texas must prepare faculty with expertise in aging capable of providing educational programs to students so as to increase their understanding of the aging process and problems of older persons.

Of the almost 16.7 million citizens in Texas, minority populations represent 35% of the state's population. Projections suggest that minority groups are the fastest growing segment of the Texas population, with some experts predicting that by the year 2025 minorities will make up 50 percent of the state's workforce. Within the population of Texans 60 years of age and older, two large minority groups contribute to a growing cultural pluralism. Of the 60 plus population group, 12.7% are Hispanic, and 9.5% are Black. The Southeast Region in particular, where two of Texas' three colleges of pharmacy are located, has a significant urban and rural population of older Blacks and Hispanics with 15.1% of the 60 years and older population being Black, and 8.3% Hispanic. About two-thirds of Hispanics in the U.S. live in just three states. California leads with 34 percent, followed by Texas at 21 percent, New York at 10 percent and Florida with 8 percent. Projections for the year 2000 indicate that hispanics will comprise 16.1% of the 2.6 million people in Texas who will be at least 60 years old (Texas Department on Aging, 1987). Meeting the challenges of a diverse older population requires minority health professionals who can educate others about language and communication practices, health care practices and beliefs of different ethnic groups and necessary modifications in health care delivery systems.

Although much has been known about pharmacotherapeutics and pharmacodynamics (Lamy 1981 and 1984, Vestal 1978 Shepherd 1987 et al.), still the problem of polypharmacy, misuse, and noncompliance of the elderly contribute to inordinately high adverse drug reactions (500,000 per year) as the presenting cause for hospital admission. Not only do these drugs have numerous side effects and interactions, their effects and effective dosages may vary with the age and condition of patients. Geriatric polypharmacy is now commonplace, with over a third of community dwelling and over half of institutionalized elderly using four or more drugs (OTA, 1987c). Yet, according to NCPIE (Darby 1987), most elderly patients report that they receive no information about side effects and contraindications from health professionals nor do they ask questions about their medications. On this subject, a recent AARP survey (March 1988 Aging Network News) stated that "while physicians talk to their patients about how and when to take a medication (74%) and what a drug is supposed to do (58%), less than half discuss precautions to take (47%) or possible side effects (37%).

In 1985 it was found that within 72 schools of pharmacy aging-related required courses constituted, on the average, 5% of all required courses. Of all elective courses, the aging-related proportion was

16%. Twenty percent of schools had no aging-related courses (Solon, Kilpatrick, and Brown, 1988). A survey which assessed geriatric pharmacy courses available in accredited US pharmacy schools during the academic year 1985-1986 found that most pharmacy schools require only 5 to 15 hours of exposure to geriatrics and that it was possible to graduate from over one-quarter of US pharmacy schools with no required exposure to geriatrics (Pratt, Simonson and Boehne, 1987). Knowing this, the number of faculty members in colleges of pharmacy with expertise in aging and geriatrics should be increased.

The author's literature review of 47 representative citations, the National Library of Medicine's search on drugs and the elderly (1977), the Project Share's review of AoA-sponsored projects in pharmacy since 1982, and the April-June 1988 listing of then-current geriatric educational activities at AoA and other federal agencies revealed only four reported attempts to develop geriatric curricula in pharmacy. To date the attempts have been the 1984 American Association of Colleges of Pharmacy/Eli Lilly Co. publication entitled, "Pharmacy Practice for the Geriatric Patients;" the AoA-funded University of Arkansas' (Fuselier et al., 1985) product, "Instructional Resource Manual for Undergraduate Core Curriculum in Geriatrics;" University of Maryland's 48-hour model curriculum for practicing pharmacists (AARP Andrus Foundation Report, 1986) and the University of Utah's (Higbee, 1984) multidisciplinary course for fourth and fifth year students.

The Administration on Aging (AoA)-sponsored project, "A Statewide Effort to Include Aging Content in Colleges of Pharmacy," was designed to (1) address the lack of adequately trained faculty members needed to introduce learning experiences in geriatrics within colleges of pharmacy, (2) facilitate the incorporation of existing resource materials used within didactic and experiential learning activities provided pharmacy students, (3) teach geropharmacy course twice at each of Texas' three colleges of pharmacy in 1989, (4) evaluate the results on student's attitudes, knowledge and ability to serve as pharmacotherapeutic consultants to physicians and their patients, and to (5) devise a plan to assess former course takers' and physicians' interactions that may lower patients' risk of adverse drug reactions. The need for this project was based upon the demographics and epidemiology of the U.S. and Texas' aging population, the lack of sufficient numbers of health professionals in geriatrics, and the dearth of appropriate curriculum content on aging in Texas' three schools of pharmacy.

Under the auspices of the Texas Consortium of Geriatric Education Centers (TCGEC), Baylor College of Medicine and Texas' three pharmacy colleges at Texas Southern University, University of Houston, and the University of Texas at Austin collaborated to improve pharmacy education concerning the care of Texas' elderly population. The following objectives were completed: identification of the knowledge and skill base essential to pharmacists' role in geriatric care, analysis of existing educational materials for appropriate content, preparation of pharmacy faculty members to teach content to students, development of individualized courses at each college, implementation of elective courses in geropharmacy taught twice during the 20-month project at each college, and determination of any modification of 107 students' attitudes and knowledge toward aging resulting from their participation in the offered courses.

## METHODOLOGY

The scope of work accomplished by this project was designed to maximize the utilization of existing faculty and instructional resources in an effort to prepare pharmacists to respond more appropriately to the health care needs of the elderly. The individual tasks developed to achieve such project goals and objectives were grouped into five separate, yet overlapping, phases of activity. These individual phases included project management, resource development, curriculum implementation, evaluation and product dissemination.

PROJECT MANAGEMENT. The management phase of the project focused on the coordinated use of faculty, fiscal, and clinical resources essential to accomplish the stated goals and objectives. Structured to occur regularly throughout the duration of the 20-month project, those tasks specific to project management involved coordinating the services of three expert consultants to identify competencies; overseeing task accomplishment by phase of activity; directing course development and resource selection; assisting with faculty selection and curriculum implementation; evaluating course and student performance; monitoring expenditures against institutional subcontracts; preparing reports and documents detailing project activities and accomplishments; and disseminating results of the project.

RESOURCE DEVELOPMENT. This phase of the project emphasized materials adaptation and faculty education. Efforts were directed at: (1) identifying responsibilities, competencies, and behavioral objectives specific to the pharmacist's role with the elderly; (2) determining existing geriatric-specific curriculum content contained within the colleges of pharmacy; (3) specifying the knowledge and skill base essential to the proposed practice role of the pharmacist regarding elderly clients; (4) matching such competencies and objectives with course and subject content contained in geriatric pharmacy modules; and (5) locating areas within existing courses and clinical exercises into which learning experiences in geriatrics could be infused. The completion of these tasks was followed by a revision of the course descriptions and content outlines to reflect the expanded offerings, adaptation of testing and evaluation methods to address the added emphasis in aging and preparation of materials designed to facilitate the introduction of new learning experiences in aging, particularly, the "learning module in geriatrics."

The second activity involved developing faculty knowledge and skills to a point where they were capable of introducing new course content in geriatrics. Tasks associated with these activities included the identification of pharmacy faculty to be involved in the curriculum adaptation process; involvement of these individuals in the TCGEC Professional Development Institute offered in Houston, Texas, February 15-17, 1989; and faculty instruction on how to use the learning module in geriatrics to enhance curriculum offerings in geriatrics.

CURRICULUM IMPLEMENTATION. This phase of the project included the implementation of didactic learning experiences in geriatrics for student pharmacists. While the ultimate goal was to infuse the essential knowledge and skill base throughout the curriculum offerings of each college of pharmacy, the initial presentation of the material and experiential activities occurred as an elective course. The three-credit hour course was designed to encompass the biological, psychological, and sociological aspects of aging, disease processes of the aged, pharmacotherapeutics in the elderly and the principles of health behavior counseling. Other factors considered included prerequisites to course enrollment, course purpose, and objectives, depth of instruction and faculty expertise, time requirements, reasons for student participation, limits on student enrollment, features of the experiential activities, and complexities involved in translating the elective to a required course. Specific consultant recommendations considered essential to each course emphasized:

(1) age-related changes in physiology that affect absorption, distribution, metabolism, and excretion of medications,

(2) increased incidence and nature of adverse drug reactions and drug interactions in the elderly,.

(3) common health disorders affecting the elderly and the drug treatments of these disorders,.

(4) factors including sensory changes, economics, and other psychological factors that influence patient communication, education and compliance,

(5) roles and responsibilities of the pharmacist in delivering health care to the elderly,

(6) demographics and the extent of drug usage by elderly individuals, and

(7) nutritional considerations in the elderly.

EVALUATION. This phase of the project began in May, 1989 and continued through January, 1990 following the presentation of the courses to 107 students. PHARM 5397, Pharmacy and the Geriatric Patient, was taught at the University of Houston College of Pharmacy to 24 students in the spring semester of 1989 and to 24 students during the fall semester. PHR 358, Drugs and the Elderly, was taught at the University of Texas at Austin to 23 students during the summer 1989 term and 17 students during the fall 1989 semester. PHARM 430, Geriatric Pharmacy Practice, was taught at the College of Pharmacy and Health Sciences at Texas Southern University to 12 students during the fall semester, 1989. Instruments used to evaluate the impact of the course on student's knowledge, attitudes and abilities to serve the needs of the elderly are contained in Appendix F.

PRODUCT DISSEMINATION. This phase of the project included: (1) documenting the process for institutional development in geriatrics; (2) detailing a strategy for the adaptation of existing instructional resources in geriatrics for use by colleges of pharmacy; (3) presenting the findings of the project to various state and national meetings; and (4) publishing monographs and manuscripts describing the curriculum and faculty development process.

The dissemination plan, as designed, should sensitize pharmacy educators regarding the complexities of change, heighten their awareness of documents germane to curriculum change at other colleges of pharmacy, and encourage others to develop advanced course work and clinical experiences in geriatrics for pharmacy students. The ultimate desired end is that more of America's older population will benefit from the therapeutic results of their prescriptions and, concomitantly, that the incidence of preventable adverse drug reactions can be reduced.

## RESULTS

A series of three instruments were used in conjunction with the course offerings to pharmacy students attending Texas Southern University, the University of Houston, and the University of Texas at Austin (see Appendix F., Survey of Facts and Attitudes on Aging). The instruments selected included: Kogan's Attitudes Toward Old People Scale, Palmore's Facts on Aging Quiz, and a 39-item adjective checklist under development at Baylor College of Medicine. Each of the instruments were administered prior to and after completion of the model geriatric pharmacy course offered students enrolled at the three participating institutions. The course was presented six times during the spring and fall semesters of 1989; twice at each of the three colleges of pharmacy. Of the 107 third and fourth year pharmacy students who took the courses, analysis of course performance was conducted upon complete data provided by 99 course participants (93%).

CHANGES IN ATTITUDES. Unfavorable attitudes toward old people have been shown to be associated with negative dispositions toward ethnic minorities, various physically disabled groups and feelings of anomie (Kogan, 1961). Anomie, as operationally defined by Srole (1956) represents pessimism about the future, helplessness in the face of powerful social forces, and the inability to find meaning or purpose in life. The Attitudes Toward Old People Scale was selected for use with this project because of the demonstrated relation between anomie as measured by an F Scale and attitudes toward old people.

The instrument is comprised of 17 matched positive-negative item pairs expressing sentiments about old people with the first item in each pair being negative. The mean student attitudes assessed prior to and after course participation at each of the institutions are presented in Tables 1 and 2. A 6-point Likert Scale where "6" equals strongly agree and "1" equals strongly disagree was used to determine student attitudes. Respondents agreed that the past experiences of older people were interesting and entertaining (pre-course mean 4.96 with .92 standard deviation and range of 4.75 to 5.13), older people preferred to continue work as long as possible (mean 4.97 with .99 standard deviation and range of 4.75 to 5.33), and that older people had the same faults as anybody else (mean 5.11 with .82 standard deviation and range of 4.75 to 5.25). There was disagreement with the suggestion that maintaining a nice residential neighborhood would best be accomplished if fewer old people lived there (mean 1.78 with .76 standard deviation and range of 1.58 to 2.04). The post-course means shown in Table 2 indicate increased agreement evidenced by higher mean values and tighter standard deviations.

When comparing responses on specific scale items across institutions, one sees a significant difference of opinion about items 5, 15, and 31 expressed by students attending Texas Southern University. Older people were viewed as being set in their ways (4.33 with .98 standard deviation), making one feel ill at ease (3.50 with .90 standard deviation). and constantly complaining about the behavior of the younger generation (4.25 with 1.14 standard deviation). Post-course comparisons were characterized by less negative perceptions on each of these items along with a global increase in positive attitudes toward older people. The changes observed, however, were not statistically significant. The greatest positive change in attitudes toward older people was exhibited by students attending the summer presentation at the University of Texas ($\rho$ values < .05 on 21 items). Irrespective of institutional setting or semester in which presented, course participants came to view older people as less set in their ways, more capable of adjusting to new situations, and more outgoing.

The second instrument administered to all course participants was Palmore's Facts on Aging Quiz, which has been previously used (1) as a stimulus for group discussion and clarification of misconcepts about aging, (2) to measure and compare different groups' overall levels of information about aging, (3) to identify the most frequent misconceptions about aging, (4) to measure the effects of lectures, courses or other training experiences by comparing before and after scores, total scores, and net anti-aging scores, and (5) as an indirect measure of bias toward the aged (Palmore, 1977). For the purposes of this course development project, the emphasis was on measuring the effects of the learning experiences on knowledge and aging bias.

The instrument is comprised of 25 factual statements designed to cover basic physical, mental and social facts and the most frequent misconceptions about aging with each odd-numbered item being false. For purposes of this study, the forced choice true-false scale was replaced with a 6-point Likert Scale where "6" equals strongly agree and "1" equals strongly disagree to assess the degree to which course participants agreed with the factual statements. Responses were later grouped into "agree" and "disagree" groups for comparative purposes. There was considerable agreement regarding students' views on the decline in physical strength (pre-course mean range 4.33 to 4.96, see Table 3) and reaction time (mean range 4.25 to 5.17) with old age, older persons being healthy enough to carry out normal activities (range 4.08 to 4.63), and that the majority of older people worked or liked to have some kind of work to do (range 4.57 to 4.96). While viewing older persons in a positive light, the respondents were incorrect in their assumptions regarding the percentage of the population at least 65 years old (range 4.25 to 5.13) and the percentage of older people residing within institutions (range 3.83 to 4.63) at any single point in time. In four out of five indicators, the post-course scores relative to population size over age 65 did not significantly improve (see Table 4).

A statistically significant change of agreement was noted across course takers in four of the five instances relative to five items. Fewer students perceived older persons as senile (.038 to .000), socially isolated or lonely (.011 to .000), less effective than younger workers (.002 to .000), bored and accident prone (.002 to .000), and residing in nursing homes (.018 to .000).

The third instrument used in conjunction with each course presented was the Baylor Adjective Checklist (Merrill et al, 1986). The checklist is comprised of 39 adjectives used to describe elderly individuals along positive and negative dimensions with an emphasis on measuring derogation of the elderly as compared to an ideal patient. Respondents were asked to characterize an elderly patient by circling a particular letter on an linear scale from "A" to "E". For statistical analysis purposes, the linear letter scale was transformed into a numerical scale where "1 or A" equals strongly disagree and "5 or E" equals strongly agree. Prior to the start of each course, respondents viewed the elderly patient as dignified, pleasant, cheerful, warm and unselfish (see Table 5). As individuals, elderly persons were considered as reliable, trusting, considerate, capable, and resourceful. Post-course scores reveal increased agreement on these dimensions along with greater recognition of their adaptability and independence (see Table 6).

The change between pre- and post-test scores was found to be significant on eight items (value ranges $\rho = < .05$ to .000). Together these changes produced a view of older persons as more alert, cooperative, active and adaptable as well as less obnoxious, opinionated, confused or absent-minded.

When considering the results from each of the courses offered, two observations can be made (see Tables 5 and 6). First, students attending Texas Southern University (TSU) College of Pharmacy and Health Sciences viewed elderly patients as less active, less adaptive and cooperative, less enthusiastic, more obnoxious and opinionated, and more bitter than did other course takers. Second, the pre- and post-course change on item 24 "obnoxious" did not change significantly (mean 2.25 and 2.33, respectively). Pre-course scores of TSU students also viewed the elderly person as more fearful and gloomy, characteristics that dissipated by the end of the course.

The final approach to course analysis focused on determining whether significant changes occurred in the attitudes measured regarding older people across each course group. This was accomplished with the determination of pre-course and post-course mean values for the Kogan Positive, Kogan Negative, Palmore Anti-Aging and Palmore Pro-Aging scales (see Table 7). The greatest pre-to post-course changes (with high to lower scores, respectively, being desired) in the Kogan Negative scores were exhibited by students attending the University of Texas at Austin. The pre-course means for the summer and fall semester presentations were 44.04 and 38.50 respectively with post-course changes to 32.90 and 29.24. While reductions in the Kogan Negative mean score at other institutions occurred, they weren't as dramatic. A similar pattern of change was exhibited by mean values for the Kogan Positive score and the Palmore Anti-Aging mean score.

In a review of the three syllabi, each college utilized the Draft Core Course Outline (Appendix D) with a few modifications. Each college generally opened the course addressing various issues of ageism such as myths, attitudes and beliefs and perceptions of the pharmacist's role in geriatrics. Demography of aging and the health status of the elderly followed as introductory lectures. Each college also dealt with pharmacy practice opportunities and how new federal regulations have or may affect future pharmacy service. The requisite lectures concerning pharmacokinetics and pharmacodynamics differentiated changes in elderly persons from young adults. Each course then reviewed the factors affecting the management of drug therapy of the aged such as coexisting diseases, polypharmacy, multiple care providers, drug interactions and adverse drug reactions. Common problems encountered in elderly patients were also studied. These included disorders of mentation, musculoskeletal, neuromuscular, genitourinary, cardiovascular, gastrointestinal and endocrine disorders. Each college was able to devote some of the remaining time in the course to lectures concerning medical equipment, death and dying issues, nutritional considerations, preventive health care. The TSU course was sensitive in its approach to how these various issues affected minorities, realizing that the graduates from that program would in all likelihood serve minority elderly persons. It was important to note how aging is viewed differently by different cultural groups.

STUDENTS' PERCEPTION OF COURSE. Using SPSS for statistical analysis, a t-test was conducted on each variable of the three instruments. When testing the differences between the means of the pre- and post-data, Table 8 indicates those variables that were significant below .05 level by college and class. It was interesting to note that none of the 98 variables (Kogan = 34, Palmore = 25, Adjective Checklist = 39) showed any significant results at TSU. Dr. Van Duyn thought that the survey instrument did not adequately measure the minority perspective of aging and thus the students did not portray their attitudes and beliefs as well as at the other colleges. The spring course at UH resulted in 22 (28%) significant variables, the UH fall course had 18 (18%), the summer course at UT-Austin resulted in 70 (71%) significant variables, and finally the fall course at UT-Austin had 31 (32%) significant variables. Only six of the ninety-eight variables (K5, K6, P1, P7, P11, P17) were statistically significant in the four courses. The presence of an inordinately high number of significant variables within the UT summer course poses several questions. Could teaching style or the effect of the course being presented in a condensed format within the summer have led to the observed result? The other question addresses whether the Survey of Facts and Attitudes on Aging is a valid instrument to capture attitudinal changes over a short time frame as when teaching a semester credit course.

Tables 9 and 10 indicate the results of analysis of variance for each of the 98 variables between all three colleges and six courses. The hypothesis of interest to the study was whether there was an interaction or relationship between each variable of the survey to the six times the course was offered (UH-Spring and Fall, TSU-Summer and Fall, UT-Summer and Fall). Table 9 indicates the existence of this relationship with respect to pre-course data and Table 10 reveals the existence of such relationships with respect to post-course data from the Survey of Facts and Attitudes on Aging. Only 13 of the 98 (13%) variables in Table 9 indicated any significant relationship: K3, K9, K15, K16, K17, K29, K31, P4, P14, P23, T8, T10, and T19. The R squared value, sometimes called the coefficient of determination (or degree of covariation), predicts the existence of a linear relationship or shared variation between the dependent and independent variables if $R^2$ approaches the value of 1. However, this measure of goodness of fit still indicates a relationship albeit a non-linear one. In Table 10, 64 (65%) of the 98 variables had an observed significance level of F below the .05 level. This information indicates that the majority of the variables were significantly related to the instruction taught within the six courses at the three colleges of pharmacy. Again, $R^2$ never approached the value of 1 in the post-course data information as it did similarly with the pre-course data information.

Several observations are consistent with the results of this study: (1) the project participants demonstrated how it was possible to introduce new learning experiences in geropharmacy within undergraduate clinical pharmacy practice curricula with minimal effort when activities are preceeded by appropriate, focused planning coupled with faculty participation to develop and execute the change process; (2) the well-received courses were sought by students in whom positive changes in attitudes toward older people were effected; and (3) the negative attitudes exhibited toward elderly persons by college students were attenuated somewhat as a result of course participation. Recommendations are these: (1) the experiential learning component of the course should be emphasized and increased; (2) minority geriatric health care elements should be developed in each of the instruments used to assess learning of the students; (3) assessments of alternative community facilities and home visits as local teaching sites for students should be encouraged; and (4) attempts should always be made to change caregivers' attitudes, inasmuch as sensitization doesn't usually result solely from "science."

## DISCUSSION AND IMPLICATIONS OF RESULTS

"The Statewide Project to Include Aging Content in Colleges of Pharmacy" affected the institutional development at the three colleges of pharmacy, encouraged community participation, increased the receptivity of students to aging issues, and inured benefits to older Americans and practicing pharmacists.

INSTITUTIONAL IMPACT. Each college utilized different strategies in marshalling their faculty resources to present the geropharmacy course. The University of Houston drew extensively on established clinical faculty involved in geriatrics and those activities of the Texas Consortium of Geriatric Education Centers. Texas Southern University relied on a core faculty member with limited support of newly trained people through the TCGEC Professional Development Institute. The University of Texas at Austin began to formalize a community network of practitioners at local clinical sites to acquire the necessary faculty and guest lecturers for specific topics.

Another area impacting institutional development was the way the project directly affected clinical pharmacy departments at the three colleges. Real world issues were directly related to current and future practice roles as a means of demonstrating the significance of the learning experiences provided. However, the most significant effect was a nurturance of a broader interest in geriatrics and geropharmacy as a credible area for education, service delivery and research.

Texas Southern University plans on offering its elective course either in the Summer or Fall of 1990 depending on the hiring of and directions set by the new Dean of the College of Pharmacy and Health Sciences during the Summer of 1990. Dr. Van Duyn plans to apply for required course status by 1991. This process will require approval of the Faculty Coordinating Board, the Faculty Council of Deans and the Board of Regents at Texas Southern University. Since many curriculum changes are expected when the new Dean arrives, his or her receptivity will likely determine the outcome of this action. In the interim, a geriatric Pharm.D. clerkship with a pharmacy consultant in a minority-based nursing home facility is being planned for late 1990 or early 1991. Because of TSU's involvement with this project, Dr. Van Duyn feels the undergraduate students are much better prepared to handle geriatric therapeutic concerns and improve the quality of pharmaceutical care received by elder Texans and the elderly nationwide. The faculty and administration at TSU have reached a new height of awareness in the importance of geriatrics to practice, education, research and community service. As an example, the faculty are completing a major federal grant application to conduct health research education in minority populations and a large segment of the grant is devoted to geriatric health care issues.

Outside of the requirements of the AoA grant, the University of Houston taught the course again during the Spring semester of 1990 to 49 enthusiastic students! Although this number presented problems in the organization of the experiential activities, Drs. Helling and Driever plan to offer the course in Fall, 1990 to a limited 30 students. (Some students have already had to drop the course because the cap of 30 has already been reached!) The College of Pharmacy is currently undergoing a massive curriculum review in which they plan to increase the amount of didactic instruction in geriatrics throughout various required courses. It is important to note that the course had in the past been designated a special topics course but effective Fall, 1990 will be an official approved elective course in the Department of Pharmacy Practice. There are plans to offer the course at least once a year from now on. Dean McCormick was well aware of the student interest in the course.

Dr. Shepherd plans to teach his course at the University of Texas-Austin during the Fall semester of 1990. He currently has 41 students enrolled for this offering. Although the course still has the status of an approved elective, he does plan to offer the course once a year. He indicated the college is undergoing a revision of the curriculum and UT plans to change its baccalaureate degree to a doctoral degree program. This new degree program will include a required course in geriatrics and drugs. Dr. Shepherd stated the proposal for the new curriculum will be considered in May, 1991.

The interest generated by the students at the three institutions emphasized the need for integration of their course in whole or in part to the required curriculum. Even though the project promotes modifications to the curriculum through an elective course, project staff strongly encourage the adoption of the content of the courses as required components within the curriculum.

FACULTY PARTICIPATION. During the Spring, 1989 course at the University of Houston, nine professionals representing a variety of disciplines from outside the College of Pharmacy presented 10 (15 hours) of the 26 lectures. The remaining didactic course hours were presented by departmental faculty. Dr. Dennis Helling and Dr. Carl Driever student experiential activities which included site visits at Seven Acres Jewish Geriatric Center, time with a consultant pharmacist at a long-term care facility, and medication history-taking and counseling time with an elderly patient.

A total of eight professors taught the Summer 1989 course at the University of Texas at Austin College of Pharmacy. The vast majority had a PharmD degree and are active pharmacy practitioners working with elderly patients. Two of the professors had PhD degrees, were pharmacists and were faculty members of the College of Pharmacy. A medical physician taught the lectures on hydration, nutrition, and the use of common over-the-counter medications. Instructors presented two hours of lecture and left the remaining hour open for case presentation, discussion and questions. Dr. Marvin Shepherd planned two field trips -- one to a home health care facility where students interacted with pharmacists and nurses to discuss what types of therapy they prepare and administer to home-bound elderly patients and second to the Audie Murphy Hospitals' Long-Term Care Facility in San Antonio. The second facility is part of the Veterans Administration Hospital which currently has a long-term care addition. It has an outstanding pharmacy services program where clinical pharmacists monitor patient drug regimens on a daily basis. Students observed how drugs are delivered, administered and monitored and the students were able to interact with the clinical pharmacist in charge.

A total of thirteen instructors were involved in the course taught at Texas Southern University. Instructors were recruited from pharmacy (10), sociology (1), nutrition (1), and nursing (1) disciplines. Seven instructors were faculty or adjunct faculty from TSU and currently involved in geriatric practice which focuses largely on minority elderly. Two instructors were graduate students who had expressed a sincere interest in teaching geriatrics. Three pharmacists were in geropharmacy practice in institutions not affiliated with TSU and were currently teaching geriatrics. One instructor was a nurse practitioner working in the New Age Hospice of Houston, Texas. Dr. Van Duyn's course consisted of 43 didactic hours and a two-hour experiential experience which was completed at the Outpatient Pharmacy at Ben Taub General Hospital and at two Houston nursing home facilities. The first session was for general orientation to the facility and the second visit paired the student with a consultant pharmacist during monthly chart reviews at the nursing home, when preparing or monitoring parenteral drug therapy with a home-health care patient or when counseling a patient on the safe and efficacious use of medications in an ambulatory care setting.

Each of the three institutional representatives expressed the problem of being without adequate faculty support to implement the course over and beyond other teaching commitments. Faculty commitments elsewhere were not reduced to make more time available for the conduct of the course. Discussion was given to the issue of motivating faculty through certain inducements, faculty retreats, preceptor conferences, or design of research forums to generate interest in the field. Special attention also focused on ways to generate the deans' interest at the three colleges, knowing that support must come from higher echelons. Sources of effective influence such as federal guidelines were noted.

COMMUNITY PARTICIPATION. There was a positive response from the community to the requests for clinically-oriented field experiences for pharmacists in long-term care. This is a significant observation as it relates to essential training resources and the magnitude of effort for linkage building. The use of other disciplines and community practitioners as outside lecturers was encouraged in an effort to strengthen the faculty reservoir and enhance interdisciplinary team networks.

RECEPTIVITY OF STUDENTS. The students' reactions to the course were quite positive and there were repeated inquiries regarding other future offerings. Overall the students gave the courses very high marks on content, learning objectives, and the manner in which it was presented. It was the institutional representative's belief that the course stimulated some students into pursuing a career in gerontological pharmacy. While visibility for a new course is important, an even more significant issue involved student's initial receptivity to "perceived non-essential" learning experiences."

The feedback from the students indicated that the course was well received. The students particularly enjoyed the guest lecturers and the experiential activities. Many students talked to the professors at the end of the course and expressed their thanks, satisfaction and enthusiasm for the class. It was the belief of one of the co-investigators that the course stimulated some students into pursuing a career in gerontological pharmacy. The following are some of the comments received by students at the end of the course:

"Excellent course -- should continue."
"Should be a required course."
"First course I actually wanted to go to."
"Would recommend this course to a friend."
"Good perspective of pharmacy and elder patients."

BENEFITS TO OLDER AMERICANS. The implications of this project for older people fall into several areas: first, greater numbers of new pharmacists will be better prepared to address the medication-related concerns of older people; second, the relative ease with which the courses were introduced, implemented and repeated suggests that other institutional settings across the country could mount similar efforts resulting in more community and consultant pharmacists better prepared to provide services in long-term care settings; thirdly, since field experiences were determined to be good recruitment tools, new pharmacists may choose these and other settings in which to deliver services to older individuals.

BENEFITS TO PRACTICING PHARMACISTS. The implications for practitioners rests primarily in one area relative to the needs of elderly persons -- departments allowing such courses have available the resources to assist the continuing education needs of pharmacists throughout the state who regularly interact with older consumers. More than anything these practitioners are in need of the information contained within the "geropharmacy" course to better assist physicians and their patients to increase therapeutic results in drug therapy.

Outside of the purview of the AoA-supported project is an activity to track students who have taken the course during their professional training. The tracking system will glean longitudinal information about the practicing pharmacists and degree of impact the course will have had on their future professional performance by practice setting, interactions with physicians, clientele served, attitudes, etc. The names and addresses of the students are being kept on file for future reference when this component of the project can be further designed and implemented.

# SUMMARY

Approximately 20 months of collaborative effort between all parties resulted in these findings and recommendations:

1. The project participants demonstrated how it was possible to introduce new learning experiences in geropharmacy within undergraduate clinical pharmacy practice curricula with minimal effort when activities are proceeded by appropriate, focused planning coupled with faculty participation to develop and execute the change process.

2. The well-received courses were sought by students in whom positive changes in attitudes toward older people were effected.

3. Readers should be appreciative that in only one of the three colleges of pharmacy, the University of Texas at Austin, had a geriatric-oriented course been previously offered. Dr. Victor Yanchick taught the course when he was Associate Dean at UT. Since his move to the deanship at the University of Oklahoma in 1985, the course at UT Austin had not been taught until Dr. Marvin Shepherd designed the course developed under the auspices of this AoA grant. While the other two colleges had some geriatric content in the form of clinical field experiences, there was no structural didactic geropharmacy instruction in either college prior to the AoA-developed courses. Inasmuch as the colleges have agreed to continue offering the courses, the significance of this project is that all future Texas pharmacy graduates will have the opportunity to learn more about the importance of geropharmacy.

4. The American Council on Pharmaceutical Education (ACPE) should take the lead to develop minimum standards for geriatric education in accredited pharmacy colleges.

5. The experiential learning component of the course should be emphasized and increased.

6. Minority geriatric health care elements should be developed in each of the instruments used to assess learning of the students.

7. Particular sensitivity and understanding should be given to culturally different practices utilized by various ethnic groups in the local communities surrounding the three colleges of pharmacy.

8. Assessments of alternative community facilities and home visits as local teaching sites for students should be encouraged.

9. To diminish the problem of instructors presenting too much material with little time for questions or interactions with students, it was suggested that the course be offered as either a two- or three-credit hour didactic course with a required, one-credit hour laboratory course for case presentations, group discussions, student projects, and/or field trips.

10. Attempts should be made to change caregivers' attitudes, inasmuch as sensitization doesn't usually result solely from "science."

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# APPENDICES

## Key Activities f
## to Include Aging Cont

| Task | | Descri |
|---|---|---|
| I. | Project Management | |
| | 1.1 | Convene meeting of institutional represen<br>timelines |
| | 1.2 | Coordinate services of expert consultants |
| | 1.3 | Devise instructional development and eva |
| | 1.4 | Establish task accomplishment oversight p |
| | 1.5 | Monitor expenditures against institutional |
| | 1/6 | Prepare reports and documents detailing |
| II. | Resource Development | |
| | A. Materials Adaptation | |
| | 2.1 | Identify responsibilities, competencies, and<br>pharmacist's role with the elderly |
| | 2.2 | Develop comprehensive map of curriculum<br>pharmacy |
| | 2.3 | Identify knowledge and skill base essential |
| | 2.4 | Match competencies and objectives with c<br>geriatric pharmacy modules |

## for "Statewide Project
## ent in Colleges of Pharmacy"

| ption | Scheduled Completion Date |
|---|---|
| tatives to review objectives and | October 25, 1988 |
| to project | December 12, 1989 |
| luation activities for each institution | December 12, 1989 |
| lan by phase of activity | December 12, 1989 |
| subcontracts | 12/31/88 - 3/31/89<br>6/30/89 - 9/30/89<br>12/31/89 - 1/31/90 |
| roject activities and accomplishments | 12/31/88 - 3/31/89<br>6/30/89 - 9/30/89<br>12/31/89 - 1/31/90 |
| l behavioral objectives specific to | June 15, 1989 |
| n content contained in three schools of | June 15, 1989 |
| to proposed practice role | June 15, 1989 |
| ourse and subject content contained in | August 30, 1989 |

| | | Task | Description |
|---|---|---|---|
| | | 2.5 | Adapt existing materials |
| | | 2.6 | Locate areas within existing courses and c<br>learning experiences in geriatrics |
| | | 2.7 | Revise course descriptions and content o |
| | | 2.8 | Adapt testing and evaluation methods to |
| | | 2.9 | Prepare materials designed to facilitate in<br>in aging |
| | | 2.10 | Produce final version of model didactic c |
| | **B. Faculty Education** | | |
| | | 2.11 | Identify pharmacy faculty to be involved i |
| | | 2.12 | Offer professional development institute f<br>institutions |
| | | 2.13 | Teach faculty how to use the model instru |
| **III.** | **Curriculum Implementation** | | |
| | | 3.1 | Select and orient instructors to be involve<br>geriatrics at the University of Houston |
| | | 3.2 | Pilot test model curriculum in geriatrics a |
| | | 3.3 | Select and orient instructors to be involve<br>geriatrics at the University of Texas at Au |
| | | 3.4 | Present model curriculum in geriatrics at<br>Southern University |
| | | 3.5 | Revise model curriculum based upon resu |

| | Scheduled Completion Date |
|---|---|
| | August 30, 1989 |
| clinical exercises into which to infuse | October 15, 1989 |
| atlines to reflect expanded offerings | October 15, 1989 |
| address emphasis on aging | October 15, 1989 |
| troduction of new learning experiences | January 30, 1990 |
| arriculum module | February 28, 1990 |
| n curriculum adaptation process | December 31, 1988 |
| for pharmacy faculty of all three | February 17, 1989 |
| actional resource guide | May 15, 1989 |
| d in teaching model curriculum in | January 15, 1989 |
| t the University of Houston | Spring semester 1989 |
| d in teaching model curriculum in stin and Texas Southern University | Time preceding Summer semester 1989 |
| University of Texas at Austin and Texas | Summer semester 1989 |
| lts of pilot testing of three institutions | Time preceding Fall semester 1989 |

| | Task | Descript |
|---|---|---|
| | 3.6 | Present revised curriculum in geriatrics at T of Houston and the University of Texas at |
| IV. | Evaluation | |
| | 4.1 | Characterize faculty participating in project |
| | 4.2 | Accomplish pre- and post-institute assessm |
| | 4.3 | Develop instrument to evaluate students co |
| | 4.4 | Measure student attitudes toward aging |
| | 4.5 | Assess student learning experiences offered |
| | 4.6 | Administer standardized end-of-course exam |
| V. | Product Development and Dissemination | |
| | 5.1 | Submit manuscripts to journals describing s skill base |
| | 5.2 | Insert pilot-tested instructional exercises wi schools of pharmacy |
| | 5.3 | Develop monograph on critical incident an ascertain points of knowledge and skill infu |
| | 5.4 | Describe curriculum development and impl tions at annual meetings of national and st Society on Aging |
| | 5.5 | Share results of project with nation's 74 ph related institutions and organizations |
| | 5.6 | Complete and submit final report to AoA |

| ion | Scheduled Completion Date |
|---|---|
| exas Southern University, University Austin | Fall semester 1989 |
|  | During each semester taught |
| ent of faculty knowledge and skills | During each semester taught |
| mpleting course | During each semester taught |
|  | During each semester taught |
|  | During each semester taught |
| nination to students | At end of each semester when course taught |
| tudent pharmacists' knowledge and | January 15, 1990 |
| thin established courses in three | January 15, 1990 |
| lysis used to map curriculum and sion | February 15, 1990 |
| ementation processes during presenta- te organizations such as Southwest | June 30, 1990 |
| armacy schools and other health- | June 30, 1990 |
|  | February 28, 1990 or at end of extension period |

## Work Scope - AoA Member Institution *
## College of Pharmacy

- Identify responsibilities, competencies, and behavioral objectives specific to the pharmacist's role with the elderly. (A,B)
- Determine existing geriatric-specific curriculum content contained within the Texas Southern University School of Pharmacy. (C)
- Identify the knowledge and skill base essential to the proposed practice role of the pharmacist regarding elderly clients. (A,B)
- Match competencies and objectives with course and subject content contained in geriatric pharmacy modules. (A)
- Locate areas within existing courses and clinical exercises into which learning experiences in geriatrics could be infused. (C)
- Revise course descriptions and content outlines to reflect expanded offerings. (C)
- Adapt testing and evaluation methods to address added emphasis on aging. (B,A)
- Prepare materials designed to facilitate the introduction of new learning experiences in aging, particularly the "model didactic curriculum module." (C,A)
- Identify and prepare pharmacy faculty members to teach content in geriatrics to students; involve individuals in a professional development activity on pharmacotherapeutics in the elderly. (A,C)
- Implement student instruction in geriatrics. (C)
- Evaluate impact of course on students' knowledge and attitudes regarding course content. (B,C)
- At completion of the project, disseminate the results of the curriculum adaptation process to various journals, all U.S. schools of pharmacy and at national meeting presentations. (A,B)
- Upon completion of the project, Texas Southern University School of Pharmacy will initiate efforts designed to incorporate appropriate geriatric content generated through the AoA-sponsored elective course into the school's curriculum by offering either an ongoing elective course, a separate required course, or by including content into various existing required courses. (C)

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* The designations A,B,C in parentheses following each item refer, respectively, to A, those activities that are conjoint responsibilities with Baylor College of Medicine; B, those activities that are the responsibility of either the project staff at Baylor or of the panel of outside consultants; and C, those responsibilities that are solely the responsibility of Texas Southern University School of Pharmacy. The order of the letters indicates primary lead responsibility.

TCGEC

**Texas Consortium of Geriatric Education Centers**

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One Baylor Plaza, Rm. 134-A
Houston, Texas 77030
(713) 799-4611

**Member Institutions:**

Baylor College of Medicine

Houston Academy of Medicine-Texas Medical Center Library

North Texas State University

Pan American University

Texas Southern University

Texas Tech University, Health Sciences Center

The University of Texas Health Science Center at Houston

School of Allied Health Sciences The University of Texas Medical Branch at Galveston

Trinity University

University of Houston-University Park

BAYLOR
COLLEGE OF
MEDICINE

January 12, 1989

Mr. Stasys Zukas
Project Officer
Administration on Aging
1200 Main Tower Building
Suite 1000
Dallas, TX 75202

Dear Mr. Zukas:

Attached, please find two copies of Quarterly Progress Report #1 for our grant (DHHS 06AM0416/01), "A Statewide Project to Include Aging Content in Schools of Pharmacy." The contract due date for the item was December 31, 1988 and was sent under cover of this letter on January 12, 1989.

Based on the suggested format, pertinent information is as follows:

1. **Major activities and accomplishments during this period**

   Task 1.1-convened meeting of institutional representatives to review objectives and timelines; Task 1.2-coordinated services of expert consultants to project; Task 1.3-devised instructional development and evaluation activities for each institution; Task 1.4-established task accomplishment oversight plan (see attached) by phase of activity; Task 1.5-monitored expenditures against institutional subcontracts; Task 1.6-prepared reports and documents detailing project activities and accomplishments; and Task 3.1-began process of selecting and orienting instructors to be involved in teaching model curriculum in geriatrics at the University of Houston School of Pharmacy.

2. **Problems**

   Because of the cancellation of our first scheduled meeting on September 15 due to the threat of Hurricane Gilbert, project staff had to reschedule the meeting for November 2, 1988. This meeting caused a short delay in our plans to begin the project. However, at the November meeting we were able to discuss various questions about the workscopes and subcontracts, identify competencies and behavioral objectives specific to the pharmacist's role with the elderly, address offerings in the current curriculum at the three schools of pharmacy in Texas, and plan course design and the evaluation criteria.

   Several points contained in the subcontracts were questioned by the institutional representatives. These points had to be negotiated and fully understood by both parties. This clarification also required more time than the project staff had envisioned.

   The University of Houston College of Pharmacy is the only institution to offer the pilot course for the spring semester in 1989. The other institutions did not feel they had enough lead time to properly advertise and prepare for the course and thus will offer it beginning with the summer semester. All three institutions will offer the course during the fall semester, 1989.

### 3. Significant findings and events

The content review committee and panel of consultants met on November 2, 1988 in Houston and once again at the Gerontological Society of America meeting in San Francisco during November 18-22, 1988. The institutional representatives met again in early December with the project staff to finalize agreements to date.

The course outline attests to the general agreement between the institutional representatives and the expert consultants on the choice and sequence of topics and the amount of time devoted to each topic. Each consultant offered their comments on the first draft of the curriculum. Their collective comments were considered and the course outline was modified where appropriate. The University of Houston College of Pharmacy agreed to teach the pilot course during Spring, 1989 and University of Texas at Austin and Texas Southern University will teach the course During the summer session. All three schools will teach the course for the second time during the fall semester of 1989.

### 4. Dissemination activities

Advertisements about our project were included in the Houston Gerontological Newsletter, vol. 2, no. 1, October 1988, page 5 and the Huffington Center on Aging Newsletter, vol. 2, no. 4, December 1988/January 1989, page 2 (see attached). Further information will appear in the SAGE Report, vol. 4, no.2, Spring Issue, 1989. The SAGE Report is a quarterly publication of the Texas Consortium of Geriatric Education Centers and the Houston Academy of Medicine-Texas Medical Center Library. As results become available, we plan to report on the project in the Texas Medical Center News and in newsletters and various publications circulated throughout Baylor College of Medicine.

Project staff also plans to identify certain local, state and national organizations which would be interested in our results. We will attempt to attend the annual meetings of the professional organizations and share our findings with other health professionals. Carl Fasser, Co-Director for the project, plans to present an overview of our project to a group of state directors in aging in Dallas on February 23, 1989.

### 5. Other activities

An activity which is currently ongoing is the development of the system we intend to employ to track students who have taken the course during their professional training. We hope this system will glean longitudinal information about the practicing pharmacists and the degree of impact the course will have had on their future professional performance by practice setting, clientele served and attitudes, etc.

**6. Activities planned for next reporting period**

We plan to offer the participating faculty at the three schools the opportunity to attend the TCGEC Professional Development Institute scheduled for February 15-17, 1989 at the Houstonian Hotel and Conference Center. The faculty will accomplish a pre- and post- institute assessment of their knowledge and skills. The faculty at the College of Pharmacy, University of Houston, will proceed through a quality orientation period to learn to teach the model didactic curriculum module. Considerable effort will be devoted to the development of the materials used throughout the course.

I trust the foregoing and the attached are satisfactory. Please let me know if any other further clarification or modification of Quarterly Progress Report #1 is necessary.

Sincerely,

Robert E. Roush

Robert E. Roush, Ed.D., M.P.H.
Project Director

Attachment(s)

TCGEC

**Texas Consortium of Geriatric Education Centers**

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Texas Tech University, Health Sciences Center

The University of Texas Health Science Center at Houston

School of Allied Health Sciences
The University of Texas
Medical Branch at Galveston

Trinity University

University of Houston - University Park

March 28, 1989

Mr. Stasys Zukas
Project Officer
Administration on Aging
1200 Main Tower Building
Suite 1000
Dallas, TX 75202

Dear Mr. Zukas:

Attached, please find two copies of the second Quarterly Progress Report for Grant No. DHHS 06AM0416/01, "A Statewide Project to Include Aging Content in Schools of Pharmacy" for the period December 1, 1988 to February 28, 1989. The contract due date for the item was March 31, 1989 and was sent under cover of this letter on March 28, 1989.

Based on the suggested format, pertinent information items are as follows:

1. **Major activities and accomplishments during this period**

Several important activities described in the task statements presented in the original proposal have been accomplished during the three-month period covered by this report. The pilot test of the course entitled "Pharmacy and the Geriatric Patient" was initiated on January 17, 1989 at the University of Houston College of Pharmacy (Task 3.2). Faculty members teaching in the course have completed the TCGEC Faculty Development Institute Survey designed to gather biographical information on pharmacy faculty involved in geriatrics (Task 4.1). Each of the 24 students participating in the elective course completed the Survey of Facts and Attitudes on Aging at the start of the course (Task 4.4). The post-course assessment will be used to measure any change in attitudes attributable to the elective course.
During this same period of time, the TCGEC offered a professional development institute in Houston, February 15-17, 1989 for pharmacy faculty at all three institutions (Task 2.12). Progress has also been made on the instrument to be used to evaluate the course following its completion (Task 4.3). Co-Project directors at the University of Texas at Austin and Texas Southern University are also completing the selection and orientation of faculty members to be involved in teaching the model course curriculum during the 1989 Summer Semester (Task 3.3). Throughout this period of time, expenditures against each of the institutional subcontracts have been monitored (Task 1.5) and documents detailing the results of project activities prepared (Task 1.6).

2. **Problems**

Two logistical problems encountered during the three-month period have been resolved. First, language contained in the subcontract between the University of Texas and Baylor College of Medicine has been clarified to the satisfaction of both parties. While the resolution of this matter took longer than anticipated, progress on the scope of work has not been affected as

Dr. Shepherd participated equally with the other two institutional representatives. The second problem involved the short-time span in which to mount a pilot test of the model curriculum at these institutions. The lead time required to properly advertise and prepare for the course was insufficient for the UT and TSU schools. The pilot test was, however, initiated in January 1989 at the University of Houston due to the efforts of Dennis Helling, Pharm.D., and Carl Driever, Ph.D.

## 3. Significant findings and events

The University of Houston College of Pharmacy's Spring 1989 course, number PCHA 5397, entitled "Pharmacy and the Geriatric Patient," (see attached schedule)indicates the complete scope and sequence of the instructional experience and attests to the multidisciplinary effort of faculty of the Texas Medical Center-area in getting this course off the ground. Verbal feedback from students involved in the course to this point in time has been very positive. Inquiries have also been made about additional courses as follow-up to the present one. Planning for the experiential activity at Seven Acres Jewish Geriatric Center is in its final stage. Seven Acres is part of a multidimensional care center offering ambulatory, day health care, residential services, and nursing home care. The purpose of this activity will be to sensitize student pharmacists to the varying degrees of health exhibited by older individuals, and to address those issues that impact on compliance with to a therapeutic regimen. Other attachments indicate the resources utilized and the recommended readings for the students.

Reports from Texas Southern University and the University of Texas at Austin indicate appropriate and timely planning for the course to be taught this summer. Dr. Shepherd anticipates offering an evening class to maximize the number of students available to enroll and to encourage commitments from a variety of instructors, particularly those in community practice settings.

## 4. Dissemination activities

Project staff is currently in the process of planning 1990 presentations at the national meeting of the National Association for Area Agencies on Aging, the National Council on Patient Information and Education, the American Association of Colleges of Pharmacy, the American Society of Consultant Pharmacists and Southwest Society on Aging. As the project nears completion, the curriculum development and implementation processes will be described in the *Houston Gerontological Society Newsletter, the Huffington Center on Aging Newsletter*, the Texas Consortium of Geriatric Education Centers *SAGE Report*, and the Texas Department on Aging's, publication, *The Aging Digest*. Further information may appear in the *American Journal of Pharmacy Education*, *The Gerontologist*, and\or *Gerontology and Geriatrics Education*. As results become available, we also plan to report on the project in the *Texas Medical Center News* and in newsletters and various publications circulated throughout Baylor College of Medicine and the three schools of pharmacy. As stated in the first quarterly report, project staff plans to identify certain local, state and national organizations which would be interested in our results. We will attempt to attend the annual meetings of the professional organizations and share our findings with other health professionals. Carl Fasser, Co-Director for the project, plans to present an overview of our project to a group of state directors in aging in Dallas in June, 1989. Mr. Fasser will discuss the rationale of the project, goals and objectives, phases of activity, progress to date and proposed future activities. Dr. Roush will be making a brief report to the College of Pharmacy at the Medical University of South Carolina in conjunction with the Tenth Annual Meeting of the Southern Gerontological Society in Charleston, S.C., April 24-27, 1989.

**5. Other activities**

Project staff has encouraged the content review committee of Drs. Helling, Shepherd and Van Duyn and\or other participating project faculty to attend a one-day conference entitled, "Traditional and Non-Traditional Medication Use Among Ethnic Elders," on Friday, April 28, 1989 in San Jose, California. The conference is sponsored by the Stanford Geriatric Education Center whose focus it is to develop training materials and curriculum for health care for older members of ethnic groups. A program brochure is attached.

An activity which is currently ongoing is the development of the system we intend to employ to track students who have taken the course during their professional training. A draft *Student Information Tracking\Locator Form* is enclosed. We hope this system will glean longitudinal information about the practicing pharmacists and the degree of impact the course will have had on their future professional performance by practice setting and clientele served.

**6. Activities planned for next reporting period**

Drs. Helling and Driever will conclude the pilot course on April 27, 1989. Student evaluations will be analyzed and a standardized end-of-course examination will be administered. Lessons learned from this pilot experience will be transmitted to those involved with the other two schools to maximize the opportunities for the students who will enroll this summer.

I trust the foregoing and the attached are satisfactory. Please let me know if any other further clarification or modification of the Second Quarterly Progress Report is necessary.

Sincerely,

Robert E. Roush

Robert E. Roush, Ed.D., M.P.H.
Project Director

Attachment(s), key.aoa

TCGEC

**Texas Consortium** of **Geriatric Education Centers**

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Houston Academy of Medicine-
Texas Medical Center Library

Center for Studies in Aging
University of North Texas

Pan American University

Texas Southern University

Texas Tech University
Health Sciences Center

Center on Aging
The University of Texas Health
Science Center at Houston

Coordinating Center on Aging
The University of Texas
Medical Branch at Galveston

Trinity University

University of Houston-
University Park

BAYLOR
COLLEGE OF
MEDICINE

June 16, 1989

Mr. Stasys Zukas
Project Officer
Administration on Aging
1200 Main Tower Building
Suite 1000
Dallas, TX 75202

Dear Mr. Zukas:

Attached, please find two copies of the third Quarterly Progress Report for Grant No. DHHS 06AM0416/01, "A Statewide Project to Include Aging Content in Schools of Pharmacy" for the period March 1, 1989 to May 31, 1989. The contract due date for the item was June 30, 1989 and was sent under cover of this letter on June 16, 1989.

Based on the suggested format, pertinent information items are as follows:

I. **Major activities and accomplishments during this period**

The second meeting of the content review committee members and panel of consultants was held June 1, 1989 at the Houston Airport Marriott Hotel from 11:00 am to 3:30 pm. Those in attendance included the following: Robert Roush, Ed.D., M.P.H., Project Director; Carl Fasser, PA-C, Co-Project Director; Marvin Shepherd, Ph.D., Co-investigator, University of Texas at Austin; Otto Van Duyn, Ph.D., Co-investigator, Texas Southern University; Dennis Helling, Pharm.D., Co-investigator, University of Houston; Victor Yanchick, Ph.D., Consultant, University of Oklahoma; Peter Lamy, Ph.D., Consultant, University of Maryland at Baltimore; Mark Stratton, Pharm.D., Consultant, University of New Mexico; and Teresa Wright, Assistant to the Project Director. Items discussed at this meeting included the following:

1. objectives and timelines to date:
2. progress with pilot test course at University of Houston;
3. model curricula at University of Texas at Austin and Texas Southern University;
4. expected core competencies;
5. measurable project endpoints; and
6. dissemination activities.

This report reflects activities accomplished during this three-month period and the proceedings from the second meeting.

**A. Progress with pilot course at University of Houston** - Drs. Dennis Helling and Carl Driever presented the course, "Pharmacy and the Geriatric Patient", PHAR 5397, to 24 students, 10 of whom were first semester seniors and 14 who were juniors. The pilot was offered through the Department of Pharmacy Practice as a special topics, elective course. Nine professionals representing a variety of disciplines from outside the College of Pharmacy presented 10 (15 hours) of the 26 lectures. The remaining didactic course hours were presented by departmental faculty. Experiential activities undertaken by the student included site visits, time with a consultant pharmacist at a long-term care facility, and medication history taking and counseling time with an elderly patient. The course outline, objectives and expected competencies are attached.

Grades were determined by the results of midterm and final examinations and the quality of a required term paper. Topics included

A sample instructor evaluation sheet is enclosed and the results are included in the appended report prepared by Drs. Helling and Driever.

The student results from the Survey of Facts and Attitudes on Aging pre- and post-test are also attached. This survey consists of three parts: Part 1 - a reproduction of Kogan's Attitudes Towards Old People Scales, Part 2 - a reproduction of Palmore's Facts on Aging Quiz, and Part 3 - the Baylor Attitudinal Checklist. The aggregate evaluative data indicate (see attached) a decrease in the Kogan negative mean value from a pre-test value of 44.21 to a post-test value of 37.50. Similarly, we saw an increase in the Kogan positive mean value, 71.75 pre-test to 79.29 post-test value. Little change was indicated in the Palmore results: pre-test Palmore negative mean was .41, and the post-test mean value was .37. Results from the Baylor Attitudinal Checklist were not statistically significant in regression analysis. For further analysis of differences between the three instruments, see Table 1, Attachment one.

Overall, the feedback indicated that the course was well received. The students particularly enjoyed the guest lecturers and the supplemental experiential at Seven Acres Jewish Geriatric Center. Although arrangements for the site visits were quite time intensive, they proved rewarding for both students and faculty. Dr. Helling also noted that several electives were offered during the spring semester, indicating students may have chosen this geriatrics course over others. There will be no cap on enrollment for the fall semester repeat of this course. The interest generated by students should emphasize the need for integration of this course in whole or in part to the required curriculum at the College of Pharmacy, University of Houston.

**B. Model Curricula at The University of Texas at Austin** - Dr. Shepherd presented an outline (see attached) for the course, "Drugs and the Elderly", PHR 358, to be offered this summer. Twenty-five students are currently registered for the course. Particular emphasis will be given to home health care, and it is important to note that lectures devoted to communication skills and nutrition are omitted from the outline because students receive this training in other courses. It was suggested that a discussion of over-the-counter (OTC) drugs was missing from the outline and should be included in the syllabus. Several suggestions were also given to Dr. Shepherd regarding additional faculty resources. And finally, some discussion was given to the design of clinical experiences and/or supplemental activities for the students. Dr. Yanchick thought it would be a good idea to link pharmacy students with the UT nursing students.

C. **Model Curricula at Texas Southern University** - Dr. Van Duyn presented an outline, competency based objectives, and a faculty roster (see attached) for the three-hour credit course, "Geriatric Health Care for Pharmacists", HSHA 451, to be offered this summer. The course will be offered to fifth year pharmacy students. The course will incorporate both case study activities and experiential learning activities.

## II. Problems

Each of the three institutional representatives expressed the problem of being without adequate faculty support to implement the course over and beyond other teaching commitments. Faculty commitments elsewhere have not been reduced to make more time available for conduct of the course. Much discussion was given to the issue of motivating faculty through certain inducements, faculty retreats, preceptor conferences or design of research forums to generate interest in this field. The use of other disciplines as outside lecturers was encouraged in an effort to strengthen the faculty reservoir and enhance interdisciplinary team networks.

Considerable attention centered on the changing nature of pharmacy practice. In the near future, OBRA, HCFA, ICF and catastrophic insurance guidelines and JCAH accreditation requirements for home health care will almost certainly effect the practice of pharmacists nationwide. Current subjects such as AIDS and biotechnology which also compete for curricular time in the future.

Another concern addressed was the lack of local teaching sites for student experiences. Assessments of alternative community facilities and home visits were strongly encouraged. A list of several such sites in the Houston area has been compiled to enhance curriculum development and experiential learning activities for students interested in the field of geriatrics (see attached).

Some reservations were noted about the time the courses were presented at the three institutions. The summer time slot may restrict student participation. Student comments obtained through evaluations should help to better determine the most convenient time for the course.

The consultants also emphasized the importance of exposing students to healthy, well older adults. This could be arranged through panel presentations with elders. And finally, particular sensitivity and understanding should be given to culturally different practices utilized by various ethnic groups in the local communities surrounding the three schools of pharmacy.

## III. Measurable Endpoints and the Infusion Process

Several endpoints were reviewed for the purpose of determining the impact of the elective courses be incorporated into the curricula of the three schools of pharmacy. These include:

1. number of courses offered
2. number of students enrolled
3. characteristics of courses
4. reasons for student participation
5. features of experiential activities
6. prerequisites to course enrollment
7. depth and quality of instruction
8. characteristics of faculty instructors
9. understanding course purposes
10. impact of course on individual sponsor(s)
11. complexities presented across teaching environments, and
12. influences, if any, exerted by the process of accreditation

Barriers to implementation of the curriculum infusion process were also discussed. Special attention focused on ways to generate the deans' interest at the three schools, knowing that support must came from the higher echelons. Sources of effective external influence such as federal guidelines were noted.

## IV. Dissemination Activities

Project presentations are tentatively planned for the annual meeting of the American Association of College Pharmacists in July, 1990 and possibly at the District 6 meetings of the National Association of Boards of Pharmacy.

## V. Activities planned for next reporting period

Drs. Shepherd and Van Duyn will begin the pilot course at UT Austin and TSU, respectively, during the summer months of 1989. Student evaluations will be analyzed and a standardized end-of-course examination will be administered. Lessons learned from this pilot experience will be transmitted to those involved with the project to maximize opportunities for other students who will enroll in courses offered at all three schools in the fall.

I trust the foregoing and the attached are satisfactory. Please let me know if any other further clarification or modification of the Third Quarterly Progress Report is necessary.

Sincerely,

Robert E. Roush

Robert E. Roush, Ed.D., M.P.H.
Project Director

Attachment(s), key.aoa

TCGEC

Texas
Consortium of
Geriatric
Education
Centers

BAYLOR
COLLEGE OF
MEDICINE

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Member Institutions:

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Houston Academy of Medicine-
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Center on Aging
The University of Texas Health
Science Center at Houston

Coordinating Center on Aging
The University of Texas
Medical Branch at Galveston

Trinity University

University of Houston-
University Park

September 26, 1989

Mr. Stasys Zukas
Project Officer
Administration on Aging
1200 Main Tower Building, Suite 1000
Dallas, TX 75202

Dear Mr. Zukas:

Attached, please find two copies of the fourth Quarterly Progress Report for Grant No. DHHS 06AM0416/01, "A Statewide Project to Include Aging Content in Schools of Pharmacy" for the period June 1, 1989 to August 30, 1989. The contract due date for the item was September 30, 1989 and was sent under cover of this letter on September 26, 1989.

Based on the suggested format, pertinent information items are as follows:

**I. Major activities and accomplishments during this period**

College of Pharmacy, University of Houston

The course, "Pharmacy and the Geriatric Patient" previously presented during the spring semester was not scheduled to be taught during the summer semester at the University of Houston (UH). Twenty-eight students, comprised primarily of 4th and 5th semester level students, are enrolled for the fall semester. A course outline is attached which is similar to the one used for the 1989 spring semester. The experiential phase offers students an orientation and tour of Seven Acres Jewish Geriatric Center, rounds with medication nurses and interviews with selected patients. Plans are also being made for each of the students to accompany consultant pharmacists when they make their monthly visits to nursing homes in the area. The pre-test was given to all students prior to their receipt of other information about the course.

College of Pharmacy, Texas Southern University

Announcements of the elective geriatric course were posted in key areas heavily congregated by undergraduate students in the College of Pharmacy building prior to the summer and fall semesters of 1989. Originally the elective geriatric course had a Health Sciences/Health Administration designation (HSHA-451) prior to the summer semester and prerequisites of a two semesters of physiology/pathophysiology/pharmacology which limited enrollment to fifth\fourth year students. (See Attachment.) The course designation was done in accordance with University regulations and because a previous geriatric elective course was being offered in the College of Health Sciences, a pharmacy prefix could not be designated to the course. The registration process and course enrollment was handled by Mr. Willie Criddle, Assistant Dean of Student Affairs, College of Pharmacy. Due to a lack of adequate enrollment, a series of geriatric lectures were given from July 12, 1989 - August 16, 1989 to interested students from 12 Noon - 1:00 pm each Wednesday on the outlined topics and a special pre-enrollment interest form was attached. (See Attachment.) A special memorandum was sent to all faculty asking them to announce the geriatric seminars and the geriatric course elective to be offered in the fall during their summer classes.

Each of the geriatric seminars had between six to eight students in attendance. Most of these students were fifth year pharmacy students who were expecting to complete graduation at the end of the summer. Two students who regularly attended sessions were fourth-year undergraduate students.

Prior to the fall semester, the course was changed to a pharmacy prefix and given the course title, Geriatric Pharmacy Practice (Pharm 430). A letter announcing the forthcoming geriatric elective course was sent to all third, fourth and fifth year pharmacy students and sent by first-class mail ten days prior to fall registration. During registration the announcement of the geriatric course was again posted in key student areas for maximum visibility. At this time there are 13 students enrolled in the elective, over 70% of whom are fourth and fifth year students. The elective consists of 43 didactic hours and a 2 hour lab which will be completed in a home health care provider, nursing home or ambulatory care facility. The students will have two sessions at the experiential site. The first will be for general orientation to the facility and the second visit will pair the student with a consultant pharmacist during monthly chart reviews at the nursing home, when preparing or monitoring parenteral drug therapy with a home-health care patient or when counseling a patient on the safe and efficacious use of medications in an ambulatory care setting. The students will be given a choice as to their preference for practice site visitations.

College of Pharmacy, University of Texas at Austin

The summer 1989 was the first time UT-Austin taught "Drugs in the Elderly" (PHR 358) at the College of Pharmacy. A total of 23 pharmacy undergraduate students were enrolled in the course. Overall the students gave the course very high marks on content, learning objectives and the manner in which it was presented. Many students talked to Dr. Shepherd after the class and expressed their thanks, satisfaction and enthusiasm for the course. It was Dr. Shepherd's belief that the course stimulated some students into pursuing a career in gerontological pharmacy.

The 23 students enrolled in the summer course varied in their academic backgrounds but all of the students had at least one year of pharmacology, pharmaceutics and medicinal chemistry and most were in their fourth year of pharmacy school. All of the students did very well on the examinations and there appeared to be no significant difference in class participation or comprehension of the class material. Overall, eight "A" grades were given and the remaining students received a "B" grade.

A total of eight professors taught sections of the course. The vast majority had a Pharm.D. degree and are active pharmacy practitioners working with elderly patients. Two of the professors have Ph.D. degrees, are pharmacists and are faculty members of the College of Pharmacy, University of Texas. The material taught by these two professors included demographics, elderly stereotypes and death and dying issues. Attached is the summer syllabus for the course which presents the various topics presented in the course by instructor name. The most interesting materials from the students' perspective were the lectures on pharmacokinetics, neurosensory deficits (aging effects on hearing, vision, taste, and smell and how these changes affect compliance of medications) and musculoskeletal disorders (pharmaceutical use to treat falls, fractures, arthritis, osteoporosis and pain management).

The mid-semester exam and final were composed of questions submitted by the instructor who had covered that particular material. Dr. Shepherd attended each lecture and thus was able to evaluate and monitor the calibre of each question and make corrections before including them on the examination.

The fall class is arranged to be given on Monday evenings. The instructors are to present two hours of lectures and leave the remaining hour open for case presentation, discussion and questions. Sixteen students are currently enrolled in the fall course which is a good showing when compared to other elective courses offered at the College. Overall, the course is progressing well. Students are learning and are excited about the opportunities they have in gerontological pharmacy. The course will undoubtedly grow in popularity as more students take and enjoy the course and communicate their feelings to other students. Next year's enrollment is predicted to be 25-30 students.

## II. Problems

Because fifth year pharmacy students at Texas Southern University opted to take three or four required courses offered during the summer semester instead of an elective course, only two students registered for the course and both later dropped to take a required course. A meeting was held in June with project staff to discuss the problem of inadequate undergraduate student interest. In order to generate more student interest about the elective course, it was decided that a series of geriatric seminars should be offered in place of the course. This move proved to be satisfactory, and resulted in the present contingent taking the course.

As expected for first time courses, the course at UT-Austin did have some shortcomings. First, since it was taught during the summer the students had to learn a lot of material in a shorter time span. Because a couple of the instructors teach at the graduate level at UTHSC-San Antonio they had trouble adjusting their material so that it was comprehensible for the undergraduate student. Another minor problem was scheduling the lectures in three hour time blocks. Depending on the instructor and the material, three hours is too long for many students to stay alert and learn. However, this time block had the advantage of allowing students to interact, discuss case studies and visit health care facilities. A three hour time slot was selected to fit the course into the ambitious student schedules. It was determined that the students liked the three-hour lecture period and it is believed that student enrollment would be less if not taught in this manner.

## III. Significant findings and events

There have been some improvements made to the outline for the summer class offered at UT-Austin. The section on mental disorders has been expanded from one to three lecture hours. Summer semester students indicated that they wanted more time in learning about the elderly and depression, dementia, and Alzheimer's Disease and the role of drug treatment for organic brain syndromes. A second change is the addition of a medical physician to the course to teach hydration, nutrition and the use of common over the counter medications. Thirdly, two field trips are planned -- first to a home health care facility where the students will be able to interact with pharmacists and nurses to discuss what types of therapy they prepare and administer to home bound elderly patients and second to a nursing home facility, possibly the Audie Murphy Hospital's Long-Term Care Facility in San Antonio. This facility is part of the Veterans Administration Hospital, which currently has a new long-term care addition. It has an outstanding pharmacy services program where clinical pharmacists monitor patient drug regimens on a daily basis. Students will be able to observe how drugs are delivered, administered and monitored and interact with the clinical pharmacist in charge.

To date, 111 students have benefited from the course offerings at the three schools of pharmacy. This figure compares to the estimated 20 students per institution per semester, for a total of 120, in the original proposal. The following breakdown applies to the schools for the two semesters in which the course was taught:

| | SUMMER | FALL |
|---|---|---|
| University of Houston | 24 | 28 |
| Texas Southern University | 7 | 13 |
| University of Texas-Austin | 23 | 16 |
| TOTAL | 54 | 57 = 111 |

## IV. Dissemination activities

Dr. Robert Roush, Project Director, described the AoA pharmacy grant on a Birmingham, Alabama PBS TV program entitled "Advances in Health - The Longevity Revolution" on September 23, 1989. As stated in the Third Progress Report, project presentations are tentatively planned for the annual meeting of the American Association of College Pharmacists in July, 1990 and possibly at District 6 meetings of the National Association of Boards of Pharmacy.

**V. Other activities**

The *Student Page* newsletter was distributed by Drs. Helling and Van Duyn at the two schools of pharmacy in the Houston area. (See attached.) This publication is designed for students of all disciplines who are preparing to improve, organize and deliver health care to the elderly. The newsletter focuses on community programs, calendar of events, research notes, special awards and important resources. Students at these two schools were encouraged to participate in geriatric/gerontologic related activities mentioned in the *Student Page*.

**VI. Activities planned for the next reporting period**

A fifth quarterly progress report will be available December 31, 1989 which will include the grades, pre-and post-assessment data, results of attitudes and beliefs on aging, and a complete evaluation of the course and presenters taught at the three schools during the fall semester. If a 60-day, no-cost extension is approved, the draft final report will be completed by **March 31, 1990**. Justification of an extension will be submitted in late October, 1989. Upon approval of the Administration on Aging, the final report will be available April 30, 1990.

I trust the foregoing and the attached are satisfactory. Please let me know if any other further clarification or modification of the Fourth Quarterly Progress Report is necessary.

Sincerely,

Robert E. Roush

Robert Roush, EdD, MPH
Project Director

Attachment(s), qtrrep.aoa

cc:
Victor Yanchick, PhD
Peter Lamy, PhD
Mark Stratton, Pharm D
Marvin Shepherd, PhD
Otto Van Duyn, PhD
Dennis Helling, Pharm D
Stuart Feldman, PhD
Carl Fasser, PA-C

TCGEC

**Texas Consortium of Geriatric Education Centers**

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Center on Aging
The University of Texas Health Science Center at Houston

Center for Studies in Aging
University of North Texas

Coordinating Center on Aging
The University of Texas Medical Branch of Galveston

Houston Academy of Medicine-Texas Medical Center Library

Huffington Center on Aging
Baylor College of Medicine

Texas Southern University

Texas Tech University Health Sciences Center

Trinity University

University of Houston

University of Texas-Pan American

BAYLOR
COLLEGE OF
MEDICINE

January 16, 1990

Mr. Stasys Zukas
Project Officer
Administration on Aging
1200 Main Tower Building, Suite 1000
Dallas, TX 75202

Dear Mr. Zukas:

Attached, please find two copies of the Fifth Quarterly Progress Report for Grant No. DHHS 06AM0416/01, "A Statewide Project to Include Aging Content in Schools of Pharmacy" for the period September 1, 1989 to December 31, 1989. The contract due date for the item was December 31, 1989 and was sent under cover of this letter on January 16, 1990.

Based on the suggested format, pertinent information items are as follows:

## I. Major activities and accomplishments during this period

College of Pharmacy, University of Houston

For the Fall Semester, 1989, there were 24 students enrolled in the elective course, PHAR 5397 Pharmacy and the Geriatric Patient. Fourteen were fifth semester students, one student was between his 4th and 5th semester, eight students took the course during their 4th semester, and one student was between his 3rd and 4th semester. The grade breakdown at the completion of the course was as follows: A = 5 students, B = 14 students, and C = 5 students. Although the instructor evaluations are not yet tabulated, student feedback was very positive. The following is a list of written comments by students at the end of the course:

> "Excellent course -- should continue."
> "Should be a required course."
> "First course I actually wanted to go to."
> "Would recommend this course to a friend."
> "Good perspective of pharmacy and elder patients."

Each student was required to write a term paper of four to five pages in length. The topics chosen by each student and approved by the course coordinator were related to pharmacy and geriatrics. The papers written covered the following areas:

Drug Considerations in the Elderly
Sleeping Disorders in the Elderly and Their Treatment
Pharmacy and Reducing Geriatric Institutionalization: A Focus on Osteoporosis, Hypertension, and Non-Compliance
Helping the Elderly Medicate
Alzheimer's Disease, A Degenerative Dementia, and its Drug Treatment

The Prevention and Treatment of Pressure Sores in the Elderly
Urinary Incontinence in the Elderly
Means Toward the Healthier Geriatric-In-Patient
Counseling the Elderly Patient: The Pharmacist's Role
Counseling the Elderly Concerning Drug Therapy
The Role of the Pharmacist in the Long-Term Care Facility
The Pharmacist's Role in Anti-depressant Therapy of the Elderly
Things to Consider when Prescribing or Dispensing Drugs to Elderly Patients

The experiential phase of the course involved site visits to Seven Acres Jewish Geriatrics Center. On September 26th, all 24 enrolled students received an orientation and tour of the facility. Throughout the remainder of the semester, students rounded with medication nurses and completed medication histories on selected residents. Four hours in duration, each experience was primarily observational in nature in order to introduce the student to types of medical problems experienced by residents in a geriatric facility and their treatments.

Each student also accompanied a consultant pharmacist from Eckerd Prescription Laboratory, Inc. during a visit to a nursing home for a monthly medication chart review. This observational experience was designed to introduce the students to the duties of the consultant pharmacist in a nursing home. A total of five consultant pharmacists and fifteen nursing homes were utilized for this component of the course.

The syllabus and list of lecturers for the course taught at the University of Houston are included in Appendix A. Three videos that were used during the course included the following:

"Patient Education in Action", produced by Hoffman-LaRoche, Inc.
"New Age Hospice", produced by New Age Hospice, Houston, Texas
"Geriatric Patient Counseling Session," produced by Drs. Barry Carter and Margaret Noyes, College of Pharmacy, University of Houston

The statistical analysis of the pre-and post-survey of facts and attitudes on aging will be presented in the results section of the final report.

College of Pharmacy, Texas Southern University

Twelve students, out of the fourteen initially enrolled, completed the course, PHARM 430, Geriatric Pharmacy Practice. Two students dropped the course when failing grades were received on the mid-term examination. The breakdown of grades for students were as follows: one student received an A; two students received B's and nine students received C's.

The elective course consisted of 43 didactic hours and a two-hour experiential experience which was completed in a home health care provider, nursing home or ambulatory care facility. The students had two sessions at the experiential site which were conducted at the Outpatient Pharmacy at Ben Taub General Hospital and at two Houston nursing home facilities. The first session was for general orientation to the facility and the second visit paired the student with a consultant pharmacist during monthly chart reviews at the nursing home, when preparing or monitoring parenteral drug therapy with a home-health care patient or when counseling a patient on the safe and efficacious use of medications in an ambulatory care setting. The students were given a choice as to their preference for practice site visitations.

Geriatric case studies covering hypertension, dementia, and urinary incontinence were used to reinforce topical areas covered in class and practical application of learning materials. In addition, characteristics of medication administration and drug-related problems encountered in the elderly were incorporated into each case study. During this exercise, four students were assigned to each case study and the students gave a report in class. The report focused on four pre-established questions regarding each case study and included monitoring parameters to demonstrate the efficacy of therapy and the avoidance of potential toxicities and adverse reactions. This activity proved to be a valuable learning experience for students and an effective teaching tool.

As part of Texas Southern University's guidelines, a student critique of the elective geriatric course in terms of objectives, content, and instruction was conducted the last day of class. The results will be available in the draft final report due March 31, 1990.

### College of Pharmacy, University of Texas at Austin

PHR 358, Drugs and the Elderly, was taught for the second time during the Fall semester of 1989 as an upper-level undergraduate elective course for pharmacy students within the College of Pharmacy. The major objectives of the course were to present pharmacy students to some of the general issues and concerns of our geriatric population, provide information as to proper drug treatment for the geriatric patient, and to expose students to different career opportunities pharmacists have in working with elderly patients.

A total of 17 students were enrolled in the course for the fall semester. The course was held from 6:00 pm to 9:00 pm on Monday evenings. The three-hour time period did have the advantage in that guest lecturers had plenty of time to present their material and to interact with the students. Plus, it is easier to plan and schedule faculty using the three hour time block and it makes planning field trips much easier. The one disadvantage is that it makes for a very long class and with it being an evening class many students were tired before the class started because they had had a full day prior to this class. Because of some inherent problems with evening classes, Dr. Shepherd does not recommend that this class be taught in the evening. It takes energetic, dynamic teachers to attain and hold the student's attention.

Most of the 17 students enrolled in the course were in the fourth year of pharmacy school and all had completed at least one year of pharmacology, pharmaceutics, and medicinal chemistry. All of the students did very well in the course; student performance from this fall semester's class was much better than during the summer semester. This was attributed to a function of semester lengths --the summer semester is five weeks shorter but one must still complete the same amount of material. Based on these results, Dr. Shepherd was reluctant to recommend that the course be offered in the summer. It appears that the "full" semesters, Spring or Fall, may offer better learning for the student.

The course outline (attached) did not differ significantly from when the course was taught during the summer semester. The one major change was that two field trips were made during the Fall semester and none were offered during the summer semester. The first field trip was to a home health agency, Caremark Pharmacy. During the three hours at the facility, students were exposed to the operations of a home health care agency and the services provided to the elderly. Students went on a tour of the facilities and spent a considerable amount of time talking with the parenteral pharmacist learning about the special needs of elderly patients who use intravenous medications while at home. After reviewing the student evaluations, Dr. Shepherd felt this was a rewarding experience and should be repeated.

The second field trip was a visit to the Audie Murphy Extended Care Center in San Antonio. This facility, part of the Veteran's Administration Hospital, is a state-of-the-art medical facility for patients who need extended nursing and medical care offering an extensive set of services to the elderly veteran and their family. Students were given an overview of the services provided at the facility, a brief tour, and the opportunity to visit the pharmacy and talk to the clinical pharmacist. The one major drawback to this visit was that this facility represents one of the best in the country and thus does not reflect what is average or normal in the way of long-term care facilities. It was a great example to show students what can be done in the way of long-term care services and it serves as an excellent model, but one must be careful not to project the myth that all long-term care facilities are this elite and offer the same type of services. Dr. Shepherd recommended that another visit to a long-term care facility be made to expose students to the different levels/style of services provided to the elderly patients.

A total of eight professors taught in the course with the vast majority holding Pharm.D. degrees and having plenty of practice experience. One change in the teaching roster that turned out to be a pleasant experience was that for the last class meeting a family practice physician was invited to present her ideas and recommendations for working with elderly patients. Her presentation was very well received by the students. They gained knowledge not only in drugs and medicine, but they also learned of the problems physicians have in working with elderly patients. Dr. Shepherd encourages the use of a physician as part of the course.

Out of the variety of topics covered during the course the three topics in which students showed the most interest, excluding the field trips, were musculoskeletal disorders (falls, fractures, arthritis, osteoporosis, and pain management), neurosensory deficits (aging effects on hearing, vision, taste and smell) and how these changes can effect medication compliance for the elderly, and career opportunities for pharmacists with the elderly. As mentioned earlier, the presentation by the family practitioner was very well received by the students.

Overall, students gave the course "very high" marks for its content and objectives. There were some problems with some instructors in that they tried to present too much material and offered little time for questions or interaction with the students. One idea that may help this situation is to offer the course as either a two or three-credit hour didactic course, but also have a required one-credit hour (three-hour laboratory or recitation period) to accompany the course. This would give added time for case presentations, group discussions, student projects, and field trips. The time could be used to augment the lectures and get the students talking and working together with the elderly. It would facilitate the class in being more of a "hands on" course instead of a "passive" learning course.

The course has grown in popularity. Some students have already approached Dr. Shepherd wanting to know when the course will be offered again. The course is scheduled to be offered again during the Fall semester of 1990. The statistical analysis of the pre-and post-survey of facts and attitudes on aging will be presented in the results section of the final report.

## III. Significant findings and events

To date, 107 students have benefited from the course offerings at the three schools of pharmacy. This figure compares to the estimated 20 students per institution per semester, for a total of 120, in the original proposal. The following breakdown applies to the schools for the two semesters in which the course was taught:

| | SUMMER | FALL |
|---|---|---|
| University of Houston | 24 | 24 |
| Texas Southern University | 7 | 12 |
| University of Texas-Austin | 23 | 17 |
| TOTAL | 54 | 53 = 107 |

## IV. Dissemination activities

A workshop will be presented by project staff to federal officials in Dallas, Texas on **February 20, 1990**. Dr. Marvin Shepherd, Co-Project Director -- University of Texas at Austin, will discuss his component of this AoA project at the **January 19-21, 1990** meeting of the Academy of Pharmacy Research Scientists and again during **March 10-14, 1990** at the American Pharmacy Association meeting, both of which are in Washington D.C. Dr. Shepherd will discuss this project in the context of economic issues related to geriatric care and again in a session devoted to health care rationing. Plans are being made to also present our findings during a poster session at the annual meeting of the American Association of College Pharmacists **July 8-11, 1990** in Salt Lake City, Utah and at the District 6 meetings of the National Association of Boards of Pharmacy, **October 4-7, 1990** in St. Louis, Missouri.

Project staff are currently making arrangements to also publicize our findings at the following geriatric/gerontological meetings:

16th Annual Meeting, Association for Gerontology in Higher Education, March 1-4, 1990, Kansas City, Missouri
36th Annual Meeting of the American Society on Aging, April 5-8, 1990, San Francisco, California
40th Annual Conference of the National Council on Aging, April 25-28, 1990, Washington, D.C.
11th Annual Southern Gerontological Society, March 21-24, 1990, Orlando, Florida
Annual Training Conference of the National Association of Area Agencies on Aging (NAAAA), August 4-8, 1990, Nashville, Tennessee

## V. Other activities

(1) The Texas Consortium of Geriatric Education Centers (TCGEC), along with the Administration on Aging, Public Health Service (PHS) Region VI, and the Texas Primary Care Associations, will offer a seminar of **Prescription Drug Dispensing and Utilization for the Elderly** on April 30, 1990 at Baylor College of Medicine, Houston, Texas. This program is aimed at the care providers in community and migrant health centers within the five-state area of PHS-Region VI. Continuing education credit will be offered for physicians, physician assistants, pharmacists, and nurses. (2) The *Student Page* newsletter (Vol. 1, No. 4) was distributed by Drs. Helling and Van Duyn at the two schools of pharmacy in the Houston area. This publication is designed for students of all disciplines who are preparing to improve, organize and deliver health care to the elderly. The newsletter focuses on community programs, calendar of events, research notes, special awards and important resources. Students at these two schools were encouraged to participate in geriatric/gerontologic related activities mentioned in the *Student Page.* (3) Our AoA project was recently advertised in the *GEC Pipeline*, vol. 1, no. 3, November, 1989 issue. This particular publication is distributed to the 34 geriatric education centers situated across the nation.

(4) The *SAGE Report* newsletter (Vol. 5, No. 1) was also distributed to approximately 775 individuals across the state of Texas. This issue advertises the upcoming program co-sponsored with the Public Health Service on April 30, 1990. Some of the data from our final report will be contained in the next issue of this newsletter which will be available in Spring 1990. (See Communications, Appendix C.)

## VI. Activities planned for the next reporting period

This progress report concludes the quarterly reporting required by AoA guidelines. If the 90-day, no-cost extension is approved, the draft final report will be completed by **March 31, 1990.** Justification of an extension was submitted under cover of a letter dated December 19, 1989 by Robert Roush, EdD, MPH, Project Director. Upon approval of the Administration on Aging, the final report will be available within thirty days of the conclusion of the project on April 30, 1990.

Project staff plans to submit fifteen copies of a one-page project abstract, executive summary (5-10 pages), final report, a one-page policy/program implication paper, and a dissemination and utilization paper (1-2 pages) by **March 31, 1990.** We understand the final report should contain an introduction and sections on methodology, results, and discussion and implication of results. As stated in our proposal, we do intend to share our findings with the nation's 74 pharmacy schools and other health-related institutions and organizations.

I trust the foregoing and the attached are satisfactory. Please let me know if any other further clarification or modification of the Fifth Quarterly Progress Report is necessary.

Sincerely,

Robert E. Roush

Robert Roush, EdD, MPH
Project Director

Attachment(s), qtrrep.aoa

cc:
Victor Yanchick, PhD
Peter Lamy, PhD
Mark Stratton, Pharm D
Marvin Shepherd, PhD
Otto Van Duyn, PhD
Dennis Helling, Pharm D
Stuart Feldman, PhD
Carl Fasser, PA-C

## Geropharmacy Course
## 1989 Semesters
## Draft Core Course Outline

### Course Description

During 1989, a 15-week, 45 clock hour semester course will be offered to fourth-year pharmacy students. Composed of five segments of three weeks each, this course is designed to expose faculty and future pharmacists to their unique health-information dispensing roles to elderly patients by having Texas' three schools of pharmacy teach the same core content twice to students recruited for this elective course.

| | Topic | Hours |
|---|---|---|
| I. | **Ageism** | 3 |
| | A. Aging Myths | |
| | B. Attitudes and Beliefs | |
| | C. Perceptions and Pharmacists' Role | |
| II. | **Demographic and Epidemiologic Considerations** | 3 |
| | A. National and State Characteristics | |
| | B. Ethnic Characteristics | |
| | C. Economics | |
| III. | **Health Status of Elderly Persons** | 3 |
| | A. Primary Aging - Sociological Changes | |
| | B. Secondary Aging - Biological Changes | |
| | C. Tertiary Aging - Disease and Disability | |
| IV. | **Effective Communication Skills** | 4 |
| | A. Cultural Considerations | |
| | B. Functional Considerations | |
| | C. Triadic Communication | |
| | D. Written Communication | |
| | E. Intergenerational Experience | |
| V. | **Opportunities for Pharmacists in Geriatrics** | 2 |
| | A. Communities Dimensions | |
| | B. Extended Care Facilities | |
| | C. Institutional Care Settings | |
| | D. Home-Based Care | |
| VI. | **Pharmacokinetics in Elderly Persons** | 3 |
| | A. Absorption | |
| | B. Distribution | |
| | C. Metabolism | |
| | D. Excretion | |

|  | Topic | Hours |
|---|---|---|
| VII. | **Pharmacodynamics in Elderly Persons** | 3 |
|  | A. Effects of Pathophysiological Changes on Distribution |  |
|  | B. Effects of Receptor Site Changes |  |
|  | C. Immune System Considerations |  |
|  | D. Alterations in Disease Presentation |  |
|  | E. Alterations in Drug Response |  |
| VIII. | **Drug and Non-Drug Management of Common Problems Encountered by Elderly Patients** |  |
|  | A. Disorders of Mentation | 1 |
|  | 1. Anxiety |  |
|  | 2. Depression |  |
|  | 3. Dementias |  |
|  | B. Musculoskeletal Disorders | 2 |
|  | 1. Osteoarthritis |  |
|  | 2. Osteoporosis |  |
|  | 3. Myalgias |  |
|  | 4. Falls and Fractures |  |
|  | 5. Pain Management |  |
|  | C. Neuromuscular Disorders | 1 |
|  | 1. Cerebrovascular Accident |  |
|  | 2. Parkinson's Disease |  |
|  | D. Genitourinary Disorders | 1 |
|  | 1. Urinary Incontinence |  |
|  | 2. Postmenopausal Bleeding |  |
|  | E. Cardiovascular Disorders | 2 |
|  | 1. Hypertension |  |
|  | 2. Congestive Heart Failure |  |
|  | 3. Ischemic Heart Disease |  |
|  | 4. Arrhythmias |  |
|  | 5. Thromboembolism |  |
|  | F. Gastrointestinal Disorders | 1 |
|  | 1. Fecal Impaction |  |
|  | 2. Constipation |  |
|  | G. Endocrine Disorders | 1 |
|  | 1. Adult Onset Diabetes |  |
|  | 2. Thyroid Disease |  |
|  | H. Neurosensory Deficits | 1 |
|  | 1. Glaucoma |  |
|  | 2. Visual Loss |  |
|  | 3. Hearing Loss |  |
|  | I. Infectious Diseases | 1 |
|  | 1. Pneumonia |  |
|  | 2. Urinary Tract Infection |  |
|  | 3. Influenza |  |
|  | 4. Tuberculosis |  |

|  | Topic | Hours |
|---|---|---|
| IX. | **Factors Affecting Management of Elderly Patients**<br>A. Coexisting Disease<br>B. Interaction Between Disease<br>C. Multiple Drug Regimens<br>D. Multiple Care Providers | 2 |
| X. | **Nutrition and Hydration**<br>A. Fluids and Electrolytes<br>B. Hyperalimentation | 1 |
| XI. | **Dental / Oral Hygiene** | 1 |
| XII. | **Pharmacists' Intervention Strategies - Resolution of Problems** | 1 |
| XIV. | **Ethics** | 1 |
|  | **TOTAL CORE HOURS** | 39 |

**Supplemental Information / Activities**

|  | Topic | Hours |
|---|---|---|
| I. | **Experiential**<br>**Teaching Nursing Homes**<br>**Day Care Centers** | 3 |
| II. | **Projects, readings, etc.** | 1 |
| III. | **Take-home Test** | 2 |
|  | **TOTAL SUPPLEMENTAL HOURS** | 6 |

## Pharm 358 - Drugs and the Elderly
## Fall 1989

| | |
|---|---|
| **Division:** | **Pharmacy Administration** |
| **Classroom:** | **Room 2.114, Pharmacy Building** |
| **Class Time:** | **6:00 - 9:00 P.M.** |
| **Prerequisite:** | **First Year Pharmacology and Pharmaceutics** |
| **Course Coordinator:** | **Marvin D. Shepherd, Ph.D.**<br>**Chairman, Pharmacy Administration**<br>**College of Pharmacy** |

### Course Outline

| Date | Topic | Instructor |
|---|---|---|
| September 11, 1989 | Demographic Characteristics of the Elderly | M.D. Shepherd |
| September 18, 1989 | Ageism - Attitudes and Beliefs, Ethical Concerns, Perceptions and Pharmacists Role with the Elderly | M.D. Shepherd |
| September 25, 1989 | Opportunities for Pharmacists in Geriatrics - Community Pharmacy, Extended Care Facilities, Institutional Care Facilities, Home Based Care | T. Guidry |
| October 2, 1989 | Factors Affecting Management of the Elderly Patient - Coexisting Disease, Multiple Drug Regimens, Multiple Care Providers, Pharmacists Strategies | M.D. Shepherd |
| October 9, 1989 | Pharmacokinetics in the Elderly - Absorption, Distribution, Metabolism, Excretion | J. Black |
| October 16, 1989 | Neurosensory Deficits - Visual Difficulties, Glaucoma, Hearing Loss, Dental and Oral Hygiene | M. Eimer |
| October 23, 1989 | Mental Disorders and the Elderly - Anxiety, Depression, Dementias | L. Crismon |

| | | |
|---|---|---|
| October 30, 1989 | MID-SEMESTER EXAMINATION | |

### Course Outline

| Date | Topic | Instructor |
|---|---|---|
| November 6, 1989 | Musculoskeletal Disorders - Osteoarthritis, Osteoporosis, Falls and Fractures | J. Black |
| November 13, 1989 | Infectious Disease Management - Pneumonia, Urinary Tract Infection, Influenza, Tuberculosis | E. Moore |
| November 20, 1989 | Incontinence and the Elderly | M. Eimer |
| November 27, 1989 | Cardiovascular Disorders - Congestive Heart Failure, Hypertension, Ischemic Heart Disease | F. Lam |
| December 4, 1989 | To be announced | |
| December 11, 1989 | FINAL EXAMINATION | |

## Supplemental Activities

This course will be taught by a team of teachers from a variety of health care settings. The course team members are listed with their lecture topic on the course syllabus. The role of the course coordinator is to organize the course, write the examinations and facilitate student learning. If you have questions, please see the course coordinator.

This course is designed to teach pharmacy students about the elderly and their use of pharmaceutical products. This includes demographic information, the aging process, and how pharmacists can provide better pharmaceutical care to the elderly.

## Grading Policy

There will be two examinations, a mid-term exam and a final exam. Each exam is worth a total of 100 points.

**Grading Scale for Course:**

A = 90 - 100%
B = 80 - 89%
C = 70 - 79%
D = 65 - 69%
F = Less than 65%

## Reading Assignments

| | |
|---|---|
| Required Text: | None |
| Reading Assignments: | Reading assignments will be given in class by individual instructor. |
| Class Handouts: | Provided by individual instructor. Students are responsible for the handout materials. |

## Pharm 430 - Geriatric Pharmacy Practice
## Fall 1989

| | |
|---|---|
| **Type of Course:** | Elective |
| **Course Credits:** | 3 hours (43 Didactic Hours + 2 lab hours)<br>(8 experiential clock hours) Total = 45 hours |
| **Division:** | Pharmacy Practice |
| **Classroom:** | Room #113 - Gray Hall |
| **Class Time:** | 3:00 p.m. - 4:30 p.m., Tuesday and Thursday |
| **Prerequisite** | Passing grade in PAS 351 |
| **Course Coordinator:** | Otto Van Duyn, Ph.D.<br>Associate Professor, COPHS<br>Director, TSU/HCHD Drug Information Center<br>Ben Taub General Hospital, Room 1-18<br>(713) 796-8393 |

### Course Outline

| Date | Topic | Instructor |
|---|---|---|
| September 5, 1989 | Concepts of Aging - Myths, Attitudes, and Beliefs, Perceptions and Ethics | Dr. Van Duyn |
| September 7, 1989 | Pharmacists's Role in Geriatrics Demographics of Aging - National State Characteristics, Economic and Ethnic Considerations | Dr. Van Duyn |
| September 12, 1989 | Health Status of Elderly Primary, Secondary and Tertiary Aging, Intergeneration Experience, Multidisciplinary Health Care Approach in Geriatrics | Dr. Van Duyn |
| September 14, 1989 | Social Gerontology with Special Focus on Minority Elderly | A. Madison, Sc.D.<br>Assoc. Professor, TSU<br>Dept. of Public Affairs |
| September 19, 1989 | Biological, Homeostatic and Pathophysiologic Factors of Aging | I. Egbunike, Pharm.D.<br>Asst. Professor, TSU COPHS |
| September 21, 1989 | Biological, Homeostatic and Pathophysiologic Factors of Aging with Special Focus on Minority Elderly | Dr. Egbunike |

## Course Outline

| Date | Topic | Instructor |
|---|---|---|
| September 26, 1989 | Effective Communication Skills in Aging Population - Functional Considerations, Verbal and Nonverbal skills | T. Terry, R.Ph.<br>Outpatient Pharmacy Supervisor, BTGH |
| September 28, 1989 | Effective Communication Skills in Aging Population - Cultural and Ethnic Considerations | T. Terry |
| October 3, 1989 | Opportunities for Pharmacists in Geriatrics - Institutional and Special Practice | Dr. Van Duyn |
| October 5, 1989 | Pharmacokinetic and Pharmacodynamic Considerations in Elderly Drug Response | Ali Baghaie, Pharm.D.<br>Asst. Professor, TSU COPHS |
| October 10, 1989 | Opportunities for Pharmacists in Geriatrics - Long-Term Care | Bob Hays, R.Ph.<br>Eckerd's Prescription Practice Laboratory |
| October 12, 1989 | Federal/State Regulations Governing Geriatric Pharmacy Practice | Bob Hays |
| October 17, 1989 | Opportunities for Pharmacists in Geriatrics - Home Health Care | Linda McCoy, R.Ph.<br>Procare Home Health Agency |
| October 24, 1989 | Prescription and OTC Drug Use and Drug-Related Problems, Their Significance and Solutions in the Elderly | Dr. Van Duyn |
| October 26, 1989 | Prescription and OTC Drug Use and Drug-Related Problems, Their Significance and Solutions in the Elderly | Dr. Van Duyn |
| October 31, 1989 | Management of Commonly Encountered Medical Problems in Elderly - Neuromuscular Disorders | Dr. Van Duyn |
| November 2, 1989 | Management of Commonly Encountered Medical Problems in Elderly - Musculoskeletal Disorders | Dr. Van Duyn |

## Course Outline

| Date | Topic | Instructor |
|---|---|---|
| November 7, 1989 | Management of Commonly Encountered Medical Problems in Elderly - Disorders of Mentation | S. Bryant, Pharm.D.<br>Assoc. Professor, UTMB<br>Psych Department |
| November 9, 1989 | Management of Commonly Encountered Medical Problems in Elderly - Cardiovascular Disease | Milca Mutangadura<br>Pharm.D. Candidate<br>TSU COPHS |
| November 14, 1989 | Management of Commonly Encountered Medical Problems in Elderly - Cardiovascular Disease | Milca Mutangadura |
| November 16, 1989 | Management of Commonly Encountered Medical Problems in Elderly - Endocrine Disorders | Alphonsus Okpara, Pharm.D., Supervisory Pharmacist, Hermann Hospital<br>and<br>Gregory Sung,<br>Pharm.D. Candidate<br>TSU COPHS |
| November 21, 1989 | Management of Commonly Encountered Medical Problems in Elderly - Urinary Incontinence | Dr. Van Duyn |
| November 28, 1989 | Management of Commonly Encountered Medical Problems in Elderly - UTIs and Pneumonia | Dr. Egbunike |
| November 30, 1989 | Nutritional Considerations and Problems in Elderly | S. Ahmed, Ph.D.<br>Assoc. Professor<br>TSUHome Economics Dept. |
| December 5, 1989 | Nutritional Considerations and Problems in Elderly | Dr. Ahmed |
| December 7, 1989 | Therapeutic Drug Monitoring (TDM) Using Geriatric Case Studies | Dr. Van Duyn |
| November 14, 1989 | Death and Dying (Including Bereavement Counseling) | A. Stewart, R.N.<br>Director of Nursing<br>New Age Hospice |

## Supplemental Activities

**Experiential Learning Visits - 8 clock hours**

To start after September 12, 1989

All students will be assigned to a long-term care facilityambulatory care facility or home health care base facility for two (2) visits. The first visit will be a general orientation session and the second visit will be for experiential learning while assigned to accompany a consultant pharmacist when making monthly chart reviews in a nursing home facilitywhen monitoring parenteral drug therapy in a home health care base patientor when counseling geriatrics regarding the safe and efficacious use of medication in an ambulatory care facility.

The student will be given an assignment during the second visit of the nursing home facility ambulatory care facility or home health-based facility.

## Grading Policy

1/3 of grade Mid-term examination
1/3 of grade final examination
1/3 of grade in-class assignment and assignment during experiential learning

## Grading Scale for Course

A = 93 - 100%
B = 83 - 92%
C = 73 - 82%
D = 63 - 72%
F = 53 - 62%

## Reading Assignments

| | |
|---|---|
| Required Text: | None |
| Reading Assignments: | Outside reading assignments may be given by individual instructor. |
| Class Handouts: | Provided by individual instructor |

## Class Attendance

If a student misses class, the student is responsible for getting handouts or lecture materials from individual instructor.

## Pharm 5397 - Pharmacy and the Geriatric Patient
## Fall 1989

**Division:** Pharmacy Practice
**Classroom:** Room 219 TMC
**Class Time:** 3:50 p.m. - 5:00 p.m., Tuesday and Thursday
**Course Coordinators:** Dennis K. Helling, Pharm.D.
Professor and Chairman
Department of Pharmacy Practice
Associate Dean for Clinical Affairs
College of Pharmacy
University of Houston
1441 Moursund St., Room 322 TMC
Houston, TX 77030
(713) 796-2253

Carl W. Driever, Ph.D.
Associate Professor
Department of Pharmacy Practice
College of Pharmacy
University of Houston
1441 Moursund St., Room 323 TMC
Houston, TX 77030
(713) 796-2253

### Course Outline

| Date | Topic | Instructor |
|---|---|---|
| August 29, 1989 | Concepts of Aging - Aging Myths, Attitudes and Beliefs | Dr. Driever |
| August 31, 1989 | Concepts of Aging - Perceptions, Ethics and the Pharmacist's Role | Dr. Driever |
| September 5, 1989 | Demographics of Aging Population - National and State Characteristics, Ethnic Characteristics and Economics | Dr. Driever |
| September 7, 1989 | Health Status of the Elderly - Biologic and Pathophysiologic Factors | Dr. Taffet |

## Course Outline

| Date | Topic | Instructor |
|---|---|---|
| September 12, 1989 | Health Status of the Elderly - Sociologic Factors | Ms. Wilson |
| September 14, 1989 | Effective Communication Skills - Functional Considerations | Dr. Carter |
| September 19, 1989 | Effective Communication Skills - Verbal, Non-Verbal | Dr. Carter |
| September 21, 1989 | Effective Communication Skills - Cultural Considerations and Role-playing with Examples and Exercises | Dr. Carter |
| September 26, 1989 | Geriatrics and Pharmacy Practice - Federal/State Regulations | Mr. Hays |
| September 28, 1989 | Geriatrics and Pharmacy Practice - Institutional Care | Dr. Galt |
| October 3, 1989 | Geriatrics and Pharmacy Practice - Hospice Care | Dr. Story |
| October 5, 1989 | Geriatrics and Pharmacy Practice - Home-based Care | Ms. Young |
| October 10, 1989 | Geriatrics and Pharmacy Practice - Geriatrics as a Specialty | Dr. Helling |
| October 12, 1989 | MIDTERM EXAMINATION | |
| October 17, 1989 | Pharmacokinetics / Pharmacodynamics of the Elderly | Dr. Lau |
| October 19, 1989 | Factors Affecting Management of the Elderly - Coexisting Disease, Polypharmacy, Multiple Care Providers, Drug Interactions, Adverse Drug Reactions | Dr. Noyes |
| October 24, 1989 | Nutritional Issues of the Elderly | Dr. Galt |
| October 26, 1989 | Durable Medical Equipment, Ostomy Products, and Miscellaneous Medical Supplies | Mr. Miller |

## Course Outline

| Date | Topic | Instructor |
|---|---|---|
| October 31, 1989 | Management of Selected Disorders of the Elderly - Osteoporosis | Dr. Noyes |
| November 2, 1989 | Management of Selected Disorders of the Elderly - Disorders of Mentation | Dr. Noyes |
| November 7, 1989 | Management of Selected Disorders of the Elderly - Drug Induced Disease and Alcoholism | Dr. Noyes |
| November 9, 1989 | Management of Selected Disorders of the Elderly - Stroke and Pressure Sores | Dr. Driever |
| November 14, 1989 | Management of Selected Disorders of the Elderly - Incontinence and GI Problems | Drs. Zenon and Weber |
| November 16, 1989 | Death and Dying (to include bereavement counseling) | Ms. Paust |
| November 21, 1989 | Therapeutic Drug Monitoring and Issues of Compliance | Dr. Carter |
| November 23, 1989 | THANKSGIVING HOLIDAY | |
| November 28, 1989 | Immunizations and Preventive Health Care | Dr. Driever |
| November 29, 1989 | FINAL EXAMINATION | |
| December 5, 1989 | Debriefing and Wrap-Up Session | Dr. Driever |

## Supplemental Activities

### Experiential Learning Visits - 12 clock hours

All students will be assigned to Seven Acres Jewish Geriatric Center for two visits. The first visit will be a general orientation and the second visit will be for observational purposes with the medication nurses and to obtain a patient medication history. Each student will also be assigned to accompany a consultant pharmacist when he makes a visit to a nursing home for a monthly chart review.

### Term Paper

4 - 5 pages on any geriatric, pharmacy-related topic. Check with instructor before starting.

## Grading Policy:

1/3 of grade midterm examination
1/3 of grade final examination
1/3 of grade term paper

### Grading Scale for Course:

A = 90 - 100%
B = 80 - 89%
C = 70 - 79%
D = 60 - 69%
F = Less than 60%

In addition, all students must satisfactorily complete the experiential portion of the course.

## Reading Assignments:

Required Text: None
Class Handouts: Provided by individual instructor

# SURVEY OF FACTS AND ATTITUDES ON AGING

**INTRODUCTION:** There exist several barriers to the effective delivery of needed caring services to the elderly citizens of our society. The items contained in this questionnaire are designed to ascertain the perceptions of individuals concerning the elderly. **PART I** is a reproduction of Kogan's Attitudes Towards Old People Scale using a six-point Likert scale for answering. **PART II** represents a reproduction of Palmore's Facts on Aging Quiz which incorporates a six-point response scale. Together, these two short surveys are designed to gather information about your perceptions of some basic physical, mental and social facts about aging. Together, the completion of both parts should take no more than twenty (20) minutes.

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**PART I:** The following survey contains seventeen (17) paired responses concerning some aspect of aging. Read each item carefully, then select and circle the one answer that best represents your perception about what has been asked, using the following six-point Likert scale:

1 = Strongly Disagree (SD)
2 = Disagree (D)
3 = Moderately Disagree (MD)
4 = Moderately Agree (MA)
5 = Agree (A)
6 = Strongly Agree (SA)

| | SD | D | MD | MA | A | SA |
|---|---|---|---|---|---|---|
| It would probably be better if most old people lived in residential units with people their own age. | 1 | 2 | 3 | 4 | 5 | 6 |
| It would probably be better if most old people lived in residential units that also housed younger people. | 1 | 2 | 3 | 4 | 5 | 6 |
| There is something different about most old people: it's hard to figure out what makes them tick. | 1 | 2 | 3 | 4 | 5 | 6 |
| Most old people are really no different from anybody else: they're as easy to understand as younger people. | 1 | 2 | 3 | 4 | 5 | 6 |
| Most old people get set in their ways and are unable to change. | 1 | 2 | 3 | 4 | 5 | 6 |
| Most old people are capable of new adjustments when the situation demands it. | 1 | 2 | 3 | 4 | 5 | 6 |
| Most old people would prefer to quit work as soon as pensions or their children can support them. | 1 | 2 | 3 | 4 | 5 | 6 |
| Most old people would prefer to continue working just as long as they possibly can rather than be dependent on anybody. | 1 | 2 | 3 | 4 | 5 | 6 |
| Most old people tend to let their homes become shabby and unattractive. | 1 | 2 | 3 | 4 | 5 | 6 |
| Most old people can generally be counted on to maintain a clean, attractive home. | 1 | 2 | 3 | 4 | 5 | 6 |
| It is foolish to claim that wisdom comes with old age. | 1 | 2 | 3 | 4 | 5 | 6 |
| People grow wiser with the coming of old age. | 1 | 2 | 3 | 4 | 5 | 6 |
| Old people have too much power in business and politics. | 1 | 2 | 3 | 4 | 5 | 6 |
| Old people should have more power in business and politics. | 1 | 2 | 3 | 4 | 5 | 6 |
| Most old people make one feel at ease. | 1 | 2 | 3 | 4 | 5 | 6 |
| Most old people are very relaxing to be with. | 1 | 2 | 3 | 4 | 5 | 6 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Most old people bore others by their insistence on talking about the "good old days." | 1 | 2 | 3 | 4 | 5 | 6 |
| One of the most interesting and entertaining qualities of most old people is their accounts of their past experiences. | 1 | 2 | 3 | 4 | 5 | 6 |
| Most old people spend too much time prying into the affairs of others and giving unsought advice. | 1 | 2 | 3 | 4 | 5 | 6 |
| Most old people tend to keep to themselves and give advice only when asked. | 1 | 2 | 3 | 4 | 5 | 6 |
| If old people expect to be liked, their first step is to get rid of their irritating faults. | 1 | 2 | 3 | 4 | 5 | 6 |
| When you think about it, old people have the same faults as anybody else. | 1 | 2 | 3 | 4 | 5 | 6 |
| In order to maintain a nice residential neighborhood, it would be best if too many old people did not live in it. | 1 | 2 | 3 | 4 | 5 | 6 |
| You can count on finding a nice residential neighborhood when there is a sizable number of old people living in it. | 1 | 2 | 3 | 4 | 5 | 6 |
| There are a few exceptions, but in general most old people are pretty much alike. | 1 | 2 | 3 | 4 | 5 | 6 |
| It is evident that most old people are very different from one another. | 1 | 2 | 3 | 4 | 5 | 6 |
| Most old people should be more concerned with their personal appearance; they're too untidy. | 1 | 2 | 3 | 4 | 5 | 6 |
| Most old people seem to be quite clean and neat in their personal appearance. | 1 | 2 | 3 | 4 | 5 | 6 |
| Most old people are irritable, grouchy, and unpleasant. | 1 | 2 | 3 | 4 | 5 | 6 |
| Most old people are cheerful, agreeable, and good humored. | 1 | 2 | 3 | 4 | 5 | 6 |
| Most old people are constantly complaining about the behavior of the younger generation. | 1 | 2 | 3 | 4 | 5 | 6 |
| One seldom hears old people complaining about the behavior of the younger generation. | 1 | 2 | 3 | 4 | 5 | 6 |
| Most old people make excessive demands for love and reassurance. | 1 | 2 | 3 | 4 | 5 | 6 |
| Most old people need no more love and reassurance than anyone else. | 1 | 2 | 3 | 4 | 5 | 6 |

**PART II**: This section contains twenty-five (25) items. Read each item carefully, then select and circle the one answer that best represents your perception about what has been asked using the following six point Likert scale.

1 = Strongly Disagree (SD)
2 = Disagree (D)
3 = Moderately Disagree (MD)
4 = Moderately Agree (MA)
5 = Agree (A)
6 = Strongly Agree (SA)

| | SD | D | MD | MA | A | SA |
|---|---|---|---|---|---|---|
| The majority of old people (past age 65) are senile (i.e., defective memory, disoriented, or demented.) | 1 | 2 | 3 | 4 | 5 | 6 |

| | SD | D | MD | MA | A | SA |
|---|---|---|---|---|---|---|
| All five senses tend to decline in old age. | 1 | 2 | 3 | 4 | 5 | 6 |
| Most old people have no interest in, or capacity for, sexual relations. | 1 | 2 | 3 | 4 | 5 | 6 |
| Lung capacity tends to decline in old age. | 1 | 2 | 3 | 4 | 5 | 6 |
| The majority of old people feel miserable most of the time. | 1 | 2 | 3 | 4 | 5 | 6 |
| Physical strength tends to decline in old age. | 1 | 2 | 3 | 4 | 5 | 6 |
| At least one-tenth of the aged are living in long-stay institutions (i.e., nursing homes, mental hospitals, homes for the aged, etc.). | 1 | 2 | 3 | 4 | 5 | 6 |
| Aged drivers have fewer accidents per person than drivers under age 65. | 1 | 2 | 3 | 4 | 5 | 6 |
| Most older workers cannot work as effectively as younger workers. | 1 | 2 | 3 | 4 | 5 | 6 |
| About 80% of the aged are healthy enough to carry out normal activities. | 1 | 2 | 3 | 4 | 5 | 6 |
| Most old people are set in their ways and unable to change. | 1 | 2 | 3 | 4 | 5 | 6 |
| Old people usually take longer to learn something new. | 1 | 2 | 3 | 4 | 5 | 6 |
| It is almost impossible for most old people to learn new things. | 1 | 2 | 3 | 4 | 5 | 6 |
| The reaction time of most old people tends to be slower than reaction time of younger people. | 1 | 2 | 3 | 4 | 5 | 6 |
| In general, most old people are pretty much alike. | 1 | 2 | 3 | 4 | 5 | 6 |
| The majority of old people are seldom bored. | 1 | 2 | 3 | 4 | 5 | 6 |
| The majority of old people are socially isolated and lonely. | 1 | 2 | 3 | 4 | 5 | 6 |
| Older workers have fewer accidents than younger workers. | 1 | 2 | 3 | 4 | 5 | 6 |
| Over 15% of the U.S. population are now age 65 or over. | 1 | 2 | 3 | 4 | 5 | 6 |
| Most medical practitioners tend to give low priority to the aged. | 1 | 2 | 3 | 4 | 5 | 6 |
| The majority of older people have incomes below the poverty level (as defined by the Federal Government). | 1 | 2 | 3 | 4 | 5 | 6 |
| The majority of old people are working or would like to have some kind of work to do (including housework and volunteer work). | 1 | 2 | 3 | 4 | 5 | 6 |
| Older people tend to become more religious as they age. | 1 | 2 | 3 | 4 | 5 | 6 |
| The majority of older people are seldom irritated or angry. | 1 | 2 | 3 | 4 | 5 | 6 |
| The health and socioeconomic status of older people (compared to younger people) in the year 2000 will probably be about the same as now. | 1 | 2 | 3 | 4 | 5 | 6 |

**PART III.** Please carefully select and circle the one answer that best represents your perception about how often you expect to find the thirty-nine (39) traits below in a geriatric person using the following five-point Likert scale:

| Trait | Rarely | Occasionally | About Half the Time | Often | Almost Always |
|---|---|---|---|---|---|
| Absent-minded | 1 | 2 | 3 | 4 | 5 |
| Active | 1 | 2 | 3 | 4 | 5 |
| Adaptable | 1 | 2 | 3 | 4 | 5 |
| Alert | 1 | 2 | 3 | 4 | 5 |
| Bitter | 1 | 2 | 3 | 4 | 5 |
| Cheerful | 1 | 2 | 3 | 4 | 5 |
| Confused | 1 | 2 | 3 | 4 | 5 |
| Considerate | 1 | 2 | 3 | 4 | 5 |
| Cooperative | 1 | 2 | 3 | 4 | 5 |
| Demanding | 1 | 2 | 3 | 4 | 5 |
| Dependent | 1 | 2 | 3 | 4 | 5 |
| Dignified | 1 | 2 | 3 | 4 | 5 |
| Dissatisfied | 1 | 2 | 3 | 4 | 5 |
| Enthusiastic | 1 | 2 | 3 | 4 | 5 |
| Fault-finding | 1 | 2 | 3 | 4 | 5 |
| Fearful | 1 | 2 | 3 | 4 | 5 |
| Gloomy | 1 | 2 | 3 | 4 | 5 |
| Independent | 1 | 2 | 3 | 4 | 5 |
| Meek | 1 | 2 | 3 | 4 | 5 |
| Moody | 1 | 2 | 3 | 4 | 5 |
| Nagging | 1 | 2 | 3 | 4 | 5 |
| Obnoxious | 1 | 2 | 3 | 4 | 5 |
| Opinionated | 1 | 2 | 3 | 4 | 5 |
| Pessimistic | 1 | 2 | 3 | 4 | 5 |
| Pleasant | 1 | 2 | 3 | 4 | 5 |
| Quarrelsome | 1 | 2 | 3 | 4 | 5 |
| Quick | 1 | 2 | 3 | 4 | 5 |
| Reflective | 1 | 2 | 3 | 4 | 5 |
| Reliable | 1 | 2 | 3 | 4 | 5 |
| Resourceful | 1 | 2 | 3 | 4 | 5 |
| Rigid | 1 | 2 | 3 | 4 | 5 |
| Rude | 1 | 2 | 3 | 4 | 5 |
| Tactful | 1 | 2 | 3 | 4 | 5 |
| Trusting | 1 | 2 | 3 | 4 | 5 |
| Unkempt | 1 | 2 | 3 | 4 | 5 |

| Trait | Rarely | Occasionally | About Half the Time | Often | Almost Always |
|---|---|---|---|---|---|
| Unselfish | 1 | 2 | 3 | 4 | 5 |
| Warm | 1 | 2 | 3 | 4 | 5 |
| Whiny | 1 | 2 | 3 | 4 | 5 |
| Withdrawn | 1 | 2 | 3 | 4 | 5 |

# STUDENT EVALUATION OF COURSE ACTIVITY

Presenter: Carl Driever, Pharm.D.
Topic: Concepts of Aging
Date: January 17, 1989

CODE:
0 Not applicable
1 Definitely Disagree
2 Disagree
3 Agree
4 Definitely Agree

1. Information presented was accurate and appropriate to your present or anticipated work setting. n= , avg=
2. Presentation was organized and void of extraneous information. n= , avg=
3. Presentation related knowledge and skills to clinical practice. n= , avg=
4. Speaker responded effectively to questions from participants. n= , avg=
5. Instructional aids used enhanced my understanding of the material. n= , avg=
6. Reading material contained in syllabus was relevant for this session. n= , avg=

Comments:

### "A Statewide Project to Include Aging Content in Colleges of Pharmacy"

Dennis Helling, PharmD, University of Houston College of Pharmacy,
Marvin Shepherd, PhD, University of Texas at Austin College of Pharmacy,
Otto Van Duyn, PhD, Texas Southern University College of Pharmacy,
Robert Roush, EdD, MPH, Baylor College of Medicine
Carl Fasser, PA-C, Baylor College of Medicine
Teresa Wright, Baylor College of Medicine

This Administration on Aging (AoA)-sponsored project was designed to address the lack of adequately trained faculty members needed to introduce learning experiences in geriatrics within colleges of pharmacy and the limitations inherent in attempts to incorporate the use of existing resource materials within didactic and experiential learning activities provided to pharmacy students.

Under the auspices of the Texas Consortium of Geriatric Education Center (TCGEC), the Baylor College of Medicine and Texas' three pharmacy colleges at Texas Southern University, University of Houston, and the University of Texas at Austin collaborated to improve pharmacy education concerning the care of Texas' elderly population. The following objectives were completed: analysis of existing educational materials for appropriate content, individualized courses developed at each college, geriatric elective courses taught twice during the 18-month project at each college, and evaluation of 107 students' attitudes and knowledge of their role as pharmacotherapeutic consultants to physicians and their elderly patients.

The outcomes to be shared at the AACP meeting will include a documented process of development of curricular course materials and evaluative data regarding the incorporation of elective courses into the three colleges' curricula in an attempt to educate more pharmacists and faculty who will be better prepared to care for elderly Texans.

*This abstract is submitted as a poster paper under the Pharmacy Practice Academic Section.*

# GERIATRIC CURRICULUM CONSIDERATIONS

Peter P. Lamy, Ph.D., Sc.D.

1. **Scan of External Environment**
   - a. The number of elderly is increasing. The aged population, itself, is aging. Those 85 years old and over are the fastest-growing segment of the population. Population statistics indicate that 66% of them (as opposed to 15% of the general population) suffer from chronic diseases.
   - b. Hospitals, in the past, provided the major focus for care. Hospitals are closing at an unprecedented rate, particularly rural hospitals (therefore, rural elderly, in particular, are at risk).
   - c. The hospital, as we know it today, will disappear. We will see smaller hospitals, devoted to more high-tech acute care, not amenable to chronic care.
2. **Changes in the Site of Care for the Elderly:**
   - a. Nursing homes can accommodate (and do accommodate) about 1.4 million elderly.
   - b. There are about 5 million elderly living in the community of equal age and afflicted with equally serious medical conditions which qualify for nursing home care, but cannot be accommodated.
   - c. About 1 million elderly are cared for in the Alternate Care Sector, i.e. domiciliary care, sheltered housing,

adult foster homes, etc., supervised by medically unqualified caregivers.

3. **Current Predictions:**

At least for the intermediate future (2050), the number of elderly, particularly the very old, will continue to rise (1 million centenarian by 2030). The number of patients with Senile Dementia of the Alzheimer's Type will increase from 3 million to 12 million.

Efforts to increase the productive life expectancy have shown so far (not very hard data, though) that for every year gained, 3.5 years of more serious disease are added at the other end of life's spectrum.

4. **Geriatric Care:**

40% of geriatric care is acute care, 60% is chronic care. Therapeutic outcomes varies directly with the site of care and indirectly with predisposing characteristics of the patient (medical diagnosis, mental impairment, competency, social support).

5. **Still of Overriding Importance:**

Understanding of and attitude towards the elderly. Elderly should not be treated as a member of a certain age group, but as individuals. The most heterogenous patient group. Great differences between males and females. Differences increase with increasing age. Chronic diseases differ in different decades of old age and present differently and atypically. Can only be learned and should only be taught in clinical setting. Those caring for elderly should realize and appreciate the differences between acute care and chronic care as well as the presentation of multiple chronic diseases and the effect of multiple drug regimens.

6. Competencies and Skills

   We need to develop competencies and skills for acute and chronic geriatric care, as well as highlight the differences in requirements and needs of the different care sites.

7. The Caregiver:

   Those providing care for the elderly should consider the patient and the caregiver as one unit.

8. Final Considerations:

   a. Should all pharmacists be trained and educated (I think at a basic level, yes.)

   b. Should all materials be taught in special courses in geriatrics/gerontology: no

   c. There should be a concerted effort by Pharmacy Schools and Organizations to seek federal Merit Awards, similar to those given for Medicine, to develop Geriatric Pharmacy Faculty.

**This is a time of great opportunity for Pharmacy. If, at this time of the development of the Catastrophic Health Coverage, we can convince those drawing up the plans of the major contributions that Pharmacy can make, we can assure a major breakthrough for Pharmacy.**

## U.S. Colleges of Pharmacy

Kenneth W. Miller, Dean
Albany College of Pharmacy
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Albany, NY 12208-3492
(518)445-7211

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Auburn University, Al 36849-5501
(205)870-2820

Robert A. Sandmann, Dean
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(317)283-9322

Ronald Maddox, Dean
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Buies Creek, NC 27506
(919)893-4111

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Creighton Univ. School of Pharmacy
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Omaha, NE 68178-1230
(402)280-2950

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(515)271-2172

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Pittsburgh, PA 15282
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Ian W. Mathison, Dean
Ferris State Univ. School of Pharmacy
901 S. State St.
Big Rapids, MI 49307
(616)592-2254

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Florida A&M Univ. College of Pharmacy
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P.O. Box 367
Tallahassee, FL 32307
(904)599-3301

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Howard Univ. College of Pharmacy
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2300 4th St., NW
Washington, DC 20059
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75 DeKalb Ave. at University Plaza
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Benjamin R. Hershenson, Dean
Massachusetts College of Pharmacy
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179 Longwood Ave.
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Medical Univ. of South Carolina
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Charleston, SC 29425-2301
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## GERIATRIC EDUCATION CENTERS

This list includes information for contacting the Geriatric Education Centers throughout the United States. The list is arranged alphabetically by the name of the institution administering the grant.

| | |
|---|---|
| **Institution:** | Baylor College of Medicine<br>Houston, Texas |
| **Program Director:** | Robert E. Roush, Ed.D., M.P.H. / Robert J. Luchi, M.D.<br>Texas Consortium of Geriatric Education Centers<br>One Baylor Plaza, M320<br>Houston, TX 77030<br>(713) 798-6470 |
| **Area Served:** | Southeast, southwest, northwest and northeast areas of TX |
| **Institution:** | Bowman Gray School of Medicine<br>Winston-Salem, NC |
| **Program Director:** | William R. Hazzard, M.D.<br>Appalachian Geriatric Education Center<br>300 South Hawthorne Road<br>Winston-Salem, NC 27103<br>(919) 748-2020 |
| **Area Served** | Unknown |
| **Institution:** | Case Western Reserve University<br>Cleveland, OH |
| **Program Director:** | Jerome Kowal, M.D.<br>Western Reserve Geriatric Education Center<br>School of Medicine<br>2119 Abington Road<br>Cleveland, OH 44106<br>(216) 368-5433 |
| **Area Served:** | Northeast OH (19 counties) |
| **Institution:** | Chicago College of Osteopathic Medicine<br>Chicago, IL |
| **Program Director:** | Jerry Rodos, D.O.<br>Great Lakes Geriatric Education Center<br>5200 South Ellis Avenue<br>Chicago, IL 60615<br>(312) 947-3386 |
| **Area Served:** | Metropolitan Chicago area |

**Institution:** Creighton University
Omaha, NE

**Program Director:** Eugene Barone, M.D.
Creighton Regional Geriatric Education Center
112 Applewood Mall
Center Shopping Center
42nd and Center Streets
Omaha, NE 68105
(402) 341-9202

**Area Served:** NE and eastern WY

**Institution:** Duke University Medical Center
Durham, NC

**Program Director:** Harvey Cohen, M.D.
Duke Geriatric Education Center
Center for Study of Aging and Human Development
Box 3003
Durham, NC 27710
(919) 684-2248

**Area Served:** States of NC and SC

**Institution:** Harvard Medical School
Boston, MA

**Program Director:** Benjamin Liptzin, M.D.
Harvard Geriatric Education Center
Division on Aging
643 Huntington Avenue
Boston, MA 02115
(617) 732-1463

**Area Served:** New England (States of MA, RI, VT, MA, and NH)

**Institution:** Hunter College
New York City, NY

**Program Director:** Rose Dobrof, D.S.W.
Hunter/Mt. Sinai Geriatric Education Center
Brookdale Center on Aging
425 East 25th Street
New York, NY 10010
(212) 481-5142

**Area Served:** New York City, the surrounding counties of Westchester, Nassau, Suffolk and Northern NJ

**Institution:** Louisiana State University
New Orleans, LA

**Program Director:** Henry Rothschild, M.D.
Louisiana Geriatric Education Center
School of Medicine
1542 Tulane Avenue
New Orleans, LA 70112
(504) 568-5842

**Area Served:** Unknown

**Institution:** Marquette University
Milwaukee, WI

**Program Director:** Jesley Ruff, D.D.S.
Midwest Geriatric Education Center
School of Dentistry
604 North 16th Street
Room 020H
Milwaukee, WI 53233
(414) 288-3712

**Area Served:** State of WI and northern IL

**Institution:** Michigan State University
East Lansing, MI

**Program Director:** James O'Brien, M.D.
Geriatric Education Center of Michigan
B-544 West Fee Hall
East Lansing, MI 48824
(517) 353-7780

**Area Served:** State of MI

**Institution:** Oregon Health Science Center
Portland, OR

**Program Director:** John R. Walsh, M.D.
Oregon Geriatric Education Center
3710 S.W. US Veterans Road
Portland, OR 97207
(503) 273-5015

**Area Served:** Unknown

**Institution:** Stanford University
Stanford, CA

**Program Director:** Gwen Yeo, Ph.D.
Stanford Geriatric Education Center
703 Welch Road
Suite H-1
Stanford, CA 94305
(415) 723-7063

**Area Served:** Southern and eastern San Francisco Bay Area including Alameda, Santa Clara, and San Mateo counties

**Institution:** State University of New York at Buffalo
Buffalo, NY

**Program Director:** Evan Calkins, M.D.
Western New York Geriatric Education Center
Beck Hall
3435 Main Street
Buffalo, NY 14214
(716) 831-3176

**Area Served:** Western NY (8 counties)

**Institution:** Temple University Institute on Aging
Philadelphia, PA

**Program Director:** Bernice A. Parlak, M.S.W.
Geriatric Education Center of Pennsylvania
University Services Building, Room 206
1601 North Broad Street
Philadelphia, PA 19122
(215) 787-6831

**Area Served:** State of PA

**Institution:** University of Alabama at Birmingham
Birmingham, AL

**Program Director:** Glenn H. Hughes, Ph.D.
Geriatric Education Center at University of Alabama
at Birmingham
UAB Center for Aging
UAB Station, MTB 731
Birmingham, AL 35294
(205) 934-5619

**Area Served:** AL, TN, and Atlanta, GA

**Institution:** University of California
San Diego, CA

**Program Director:** Joe Ramsdell, M.D.
San Diego Geriatric Education Center
School of Medicine
San Diego, CA 92103
(619) 543-6275

**Area Served:** San Diego County and parts of Imperial County, CA

**Institution:** University of California at Los Angeles
Los Angeles, CA

**Program Director:** John C. Beck, M.D.
California Geriatric Education Center
Multicampus Division of Geriatrics
Department of Medicine
10833 Le Conte Avenue
Los Angeles, CA 90024-1687
(213) 825-9640

**Area Served:** Unknown

**Institution:** University of Connecticut
Farmington, CT

**Program Director:** Richard W. Besdine, M.D.
University of Connecticut Geriatric Education Center
Travelers Center on Aging
School of Medicine
263 Farmington Avenue
Farmington, CT 06032-9984
(203) 674-3959

**Area Served:** State of CT

**Institution:** University of Florida
Gainesville, FL

**Program Director:** George Caranasos, M.D.
University of Florida Geriatric Education Center
Box J-277, JHMC
Gainesville, FL 32610
(904) 376-1611, ext. 5027

**Area Served:** State of FL

**Institution:** University of Hawaii at Manoa
Honolulu, HI

**Program Director:** Madeleine Goodman, Ph.D.
Pacific Islands Geriatric Education Center
347 N. Kuakini Street
Honolulu, HI 96817
(808) 523-8461

**Area Served:** Hawaiian Islands, the Pacific Basin (which includes Micronesia, Samoa and the Marianas)

**Institution:** University of Illinois at Chicago
Chicago, IL

**Program Director:** Leopold G. Selder, Ph.D.
Illinois Geriatric Education Center
College of Associated Health Professions
808 S. Wood St., Room 619 CME
Chicago, IL 60612
(312) 996-8236

**Area Served:** State of IL

**Institution:** University of Iowa
Iowa City, IA

**Program Director:** Ian M. Smith, M.D.
Iowa Geriatric Education Center
Department of Internal Medicine
University of Iowa Hospitals and Clinics
Iowa City, IA 52242
(319) 356-2727

**Area Served:** State of IA

**Institution:** University of Kentucky
Lexington, KY

**Program Director:** William R. Markesberg, M.D.
Ohio Valley/Appalachia Regional Geriatric Education Center
20 Chandler Medical Center, Annex 1
Lexington, KY 40536-0079
(606) 233-5156

**Area Served:** KY, WVA, northeastern TN, southern OH, and southern IN

**Institution:** University of Miami
Miami, FL

**Program Director:** Edwin J. Olsen, M.D.
Miami Area Geriatric Education Center
Department of Psychiatry
P.O. Box 016960 (D-29)
Miami, FL 33101
(305) 549-6327

**Area Served:** Dade, Broward, Monroe, and Palm Beach Counties in FL

**Institution:** University of Minnesota
Minneapolis, MN

**Program Director:** Robert L. Kane, M.D.
Minnesota Area Geriatric Education Center
School of Public Health
A302 Mayo Building, Box 197
420 Delaware Street S.E.
Minneapolis, MN 55455
(612) 624-6669

**Area Served:** Upper Midwest

**Institution:** University of Mississippi
Jackson, MS

**Program Director:** Ames F. Tyron, D.D.S., Ph.D.
Mississippi Geriatric Education Center
University of Mississippi, Medical Center
Alumni House, Room 3321
Jackson, MS 39216-4505
(606) 984-6190

**Area Served:** State of MS

**Institution:** University of New Mexico
Albuquerque, NM

**Program Director:** Mark Stratton, Pharm.D.
New Mexico Geriatric Education Center
Room 179A
Nursing/Pharmacy Building
Albuquerque, NM 87131
(505) 277-5134

**Area Served:** State of NM

| | |
|---|---|
| **Institution:** | University of North Dakota<br>Grand Forks, ND |
| **Program Director:** | Lynn Groth, M.S.<br>Dakota Plains Geriatric Education Center<br>Department of Family Medicine<br>UND School of Medicine<br>221 South Fourth Street<br>Grand Forks, ND 58201<br>(701) 780-3200 |
| **Area Served:** | States of ND and SD |

| | |
|---|---|
| **Institution:** | University of Oklahoma<br>Oklahoma City, OK |
| **Program Director:** | James W. Mold, M.D.<br>Oklahoma Geriatric Education Center<br>O'Donoghue Rehabilitation Institute<br>1122 N.E. 13th Street<br>Oklahoma City, OK 73190<br>(405) 271-8558 |
| **Area Served:** | Unknown |

| | |
|---|---|
| **Institution:** | University of Pennsylvania<br>Philadelphia, PA |
| **Program Director:** | Risa Lavizzo-Mourey, M.D., M.B.A.<br>Delaware Valley Geriatric Education Center<br>Center for the Study of Aging<br>3906 Spruce Street / H1<br>Philadelphia, PA 19104<br>(215) 898-3163 |
| **Area Served:** | Eastern PA, southern NJ, and northern DE |

| | |
|---|---|
| **Institution:** | University of Puerto Rico<br>San Juan, PR |
| **Program Director:** | Elizabeth Sanchez, Ph.D.<br>Geriatric Education Center of University of Puerto Rico<br>School of Medicine<br>Medical Sciences Campus<br>G.P.O. Box 5067<br>San Juan, PR 00936<br>(809) 751-6634 |
| **Area Served:** | PR (possibly other Carribean countries) |

**Institution:** University of Southern California
Los Angeles, CA

**Program Director:** R. Bruce Sloane, M.D.
Pacific Geriatric Education Center
Health Sciences Campus
2250 Alcazar Street, Suite 110
Los Angeles, CA 90033
(213) 224-7994

**Area Served:** CA, NV, AZ and HI

**Institution:** University of South Florida
Tampa, FL

**Program Director:** Eric Pfeiffer, M.D.
University of South Florida Geriatric Education Center
Suncoast Gerontology Center
Medical Center Box 50
12901 North 30th Street
Tampa, FL 33612
(813) 974-4355

**Area Served:** The Florida Silver Triangle: the West Coast of Florida eastward to Orlando

**Institution:** University of Texas Health Science Center
San Antonio, TX

**Program Director:** Michele Saunders, D.M.D., M.S., M.P.H.
South Texas Geriatric Education Center
UTHSC-San Antonio
Department of Dental Diagnostic Science
7703 Floyd Curl Drive
San Antonio, TX 78284-7919
(512) 567-3370

**Area Served:** South TX (approximately 62 counties)

**Institution:** University of Utah
Salt Lake City, UT

**Program Director:** Margaret F. Dimond, R.N., Ph.D.
Intermountain West Geriatric Education Center
College of Nursing
25 South Medical Drive
Salt Lake City, UT 84112
(801) 581-8198

**Area Served:** State of UT, selected areas in ID, CO, and MT

**Institution:**
University of Washington
Seattle, WA

**Program Director:**
Itamar B. Abrass, M.D.
Northwest Geriatric Education Center
3935 University Way, N.E., JM-20
Seattle, WA 98195
(206) 545-7478

**Area Served:**
WA, AK, MT, and ID (also professional schools
in NV and OR

**Institution:**
Virginia Commonwealth University
Richmond, VA

**Program Director:**
Iris A. Parham, Ph.D.
Geriatric Education Center at Virginia Commonwealth University
Medical College of Virginia
Gerontology Department
P.O. Box 568 - MCV Station
Richmond, VA 23298
(804) 786-1565

**Area Served:**
VA

## TABLE 1

### Means and Standard Deviation for Kogan by College and Class Pre-Test

| QUESTION | Univ. of Houston Spring |  | Univ. of Houston Fall |  | Texas Southern Univ. Fall |  | UT-Austin Summer |  | UT-Austin Fall |  |
|---|---|---|---|---|---|---|---|---|---|---|
|  | Mean | StdDev | Mean | StdDev | Mean | StdDev | Mean | StdDev | Mean | StdDev |
| K 1 | 2.67 | 1.43 | 2.25 | 1.07 | 3.25 | 1.22 | 2.70 | 1.26 | 2.81 | 1.28 |
| K 2 | 4.46 | 1.35 | 4.04 | 1.12 | 4.50 | 1.09 | 3.83 | 1.07 | 4.38 | .89 |
| K 3 | 2.79 | 1.41 | 1.75 | .74 | 3.33 | 1.37 | 2.39 | .94 | 1.94 | .85 |
| K 4 | 4.17 | 1.17 | 4.50 | .88 | 3.67 | 1.37 | 4.26 | 1.10 | 4.50 | 1.10 |
| K 5 | 3.67 | 1.49 | 3.50 | 1.22 | 4.33 | .98 | 3.70 | 1.02 | 3.44 | 1.15 |
| K 6 | 4.13 | 1.08 | 3.67 | 1.05 | 3.67 | 1.05 | 3.67 | .98 | 3.78 | 1.20 |
| K 7 | 2.29 | 1.20 | 1.92 | .93 | 1.75 | .75 | 2.09 | 1.31 | 1.87 | .62 |
| K 8 | 4.96 | .95 | 4.75 | 1.11 | 5.33 | .65 | 5.13 | 1.01 | 4.81 | 1.05 |
| K 9 | 2.04 | .91 | 2.29 | 1.33 | 2.75 | .97 | 2.13 | 1.06 | 1.56 | .51 |
| K 10 | 4.46 | 1.02 | 4.79 | .66 | 4.33 | .78 | 4.30 | .97 | 4.81 | .98 |
| K 11 | 2.54 | 1.41 | 2.75 | 1.15 | 3.00 | 1.21 | 2.39 | .99 | 2.63 | 1.41 |
| K 12 | 4.17 | 1.34 | 4.08 | .93 | 4.17 | 1.53 | 4.22 | .90 | 4.44 | 1.21 |
| K 13 | 2.63 | 1.35 | 2.71 | 1.33 | 2.83 | 1.03 | 2.52 | 1.12 | 2.12 | .81 |
| K 14 | 3.54 | 1.22 | 3.08 | 1.02 | 4.08 | 1.00 | 3.30 | 1.40 | 4.13 | 1.15 |
| K 15 | 2.48 | 1.24 | 2.46 | .98 | 3.50 | .90 | 2.43 | .95 | 2.00 | .82 |
| K 16 | 4.36 | 1.05 | 4.21 | .88 | 3.83 | .72 | 3.74 | 1.29 | 4.88 | .72 |
| K 17 | 2.79 | 1.35 | 2.54 | .83 | 2.92 | 1.16 | 3.09 | 1.08 | 2.31 | .87 |
| K 18 | 4.96 | 1.20 | 4.75 | 1.07 | 5.00 | .43 | 5.04 | .71 | 5.13 | .81 |
| K 19 | 2.50 | .83 | 2.29 | .91 | 3.17 | 1.27 | 2.57 | .95 | 2.25 | .77 |
| K 20 | 3.79 | 1.10 | 3.42 | 1.06 | 3.33 | .98 | 3.26 | 1.10 | 3.38 | 1.02 |
| K 21 | 2.38 | 1.06 | 1.96 | 1.04 | 2.58 | 1.31 | 2.09 | .85 | 1.87 | .62 |
| K 22 | 5.04 | .95 | 5.21 | .72 | 4.75 | .87 | 5.17 | .94 | 5.25 | .45 |
| K 23 | 2.04 | 1.04 | 1.58 | .50 | 2.00 | .85 | 1.74 | .69 | 1.56 | .51 |
| K 24 | 4.33 | .87 | 4.17 | 1.40 | 4.50 | .67 | 4.22 | .85 | 4.63 | .96 |
| K 25 | 2.79 | 1.28 | 2.38 | 1.10 | 3.17 | 1.27 | 2.61 | 1.16 | 2.31 | .70 |
| K 26 | 4.29 | 1.33 | 4.42 | 1.02 | 4.25 | 1.14 | 4.43 | 1.24 | 4.56 | .96 |
| K 27 | 2.33 | .92 | 2.33 | .87 | 2.58 | 1.00 | 2.70 | .93 | 2.19 | .75 |
| K 28 | 4.33 | .92 | 4.29 | .69 | 4.25 | .87 | 4.13 | .97 | 4.81 | .75 |
| K 29 | 2.17 | 1.01 | 2.08 | .88 | 3.00 | .85 | 2.30 | .82 | 2.00 | .63 |
| K 30 | 4.33 | 1.17 | 4.00 | .98 | 3.92 | 1.16 | 4.17 | .89 | 4.44 | 1.21 |
| K 31 | 3.21 | 1.06 | 3.54 | 1.02 | 4.25 | 1.14 | 3.74 | 1.14 | 3.06 | 1.12 |
| K 32 | 3.17 | 1.09 | 3.00 | .66 | 2.58 | 1.00 | 3.13 | 1.14 | 3.50 | .82 |
| K 33 | 3.00 | 1.29 | 2.67 | .92 | 3.33 | 1.44 | 2.87 | 1.36 | 2.56 | 1.21 |
| K 34 | 3.63 | 1.71 | 3.71 | 1.20 | 2.50 | 1.38 | 2.87 | 1.52 | 3.13 | 1.54 |

## TABLE 2

### Means and Standard Deviation for Kogan by College and Class Post-Test

| QUESTION | Univ. of Houston Spring | | Univ. of Houston Fall | | Texas Southern Univ. Fall | | UT-Austin Summer | | UT-Austin Fall | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | StdDev | Mean | StdDev | Mean | StdDev | Mean | StdDev | Mean | StdDev |
| K 1 | 2.33 | 1.37 | 2.42 | 1.14 | 3.17 | 1.64 | 1.95 | 1.15 | 1.59 | .87 |
| K 2 | 5.00 | .88 | 3.83 | 1.55 | 4.17 | 1.19 | 4.85 | 1.14 | 4.76 | 1.64 |
| K 3 | 2.00 | 1.22 | 2.08 | .72 | 2.75 | .87 | 1.65 | .67 | 1.71 | .85 |
| K 4 | 5.25 | 1.03 | 4.58 | .88 | 3.92 | 1.38 | 5.00 | 1.08 | 5.18 | .95 |
| K 5 | 2.08 | 1.25 | 2.63 | 1.13 | 3.75 | 1.42 | 1.90 | 1.17 | 1.71 | .99 |
| K 6 | 4.92 | 1.02 | 4.71 | .91 | 4.00 | 1.13 | 5.15 | .99 | 5.24 | .56 |
| K 7 | 1.79 | .78 | 1.75 | .85 | 1.92 | 1.16 | 1.25 | .44 | 1.24 | .56 |
| K 8 | 5.33 | .64 | 5.29 | .55 | 5.17 | .58 | 5.35 | 1.18 | 5.41 | .71 |
| K 9 | 2.00 | 1.10 | 1.87 | .45 | 2.58 | 1.31 | 1.35 | .75 | 1.41 | .51 |
| K 10 | 4.67 | 1.24 | 4.96 | .46 | 4.25 | .75 | 5.20 | .83 | 5.29 | .99 |
| K 11 | 2.29 | 1.08 | 2.42 | 1.18 | 2.75 | 1.22 | 2.50 | 1.47 | 2.12 | 1.05 |
| K 12 | 4.42 | 1.14 | 4.38 | 1.06 | 4.33 | .65 | 4.15 | 1.50 | 4.47 | 1.01 |
| K 13 | 2.71 | 1.43 | 2.79 | 1.25 | 2.58 | 1.00 | 2.10 | 1.02 | 2.00 | 1.17 |
| K 14 | 4.35 | .88 | 3.29 | 1.08 | 3.75 | 2.05 | 3.50 | 1.47 | 4.71 | 1.16 |
| K 15 | 1.92 | 1.02 | 2.38 | 1.06 | 4.17 | .72 | 2.15 | 1.09 | 1.65 | .86 |
| K 16 | 4.83 | .82 | 4.08 | 1.32 | 3.75 | .87 | 4.60 | .94 | 5.06 | .75 |
| K 17 | 2.33 | 1.40 | 2.42 | .97 | 2.92 | 1.24 | 2.10 | .79 | 1.94 | .83 |
| K 18 | 5.33 | .82 | 4.92 | .93 | 5.08 | .79 | 4.85 | 1.14 | 5.24 | .90 |
| K 19 | 2.21 | .78 | 2.13 | .99 | 2.67 | .78 | 1.80 | .62 | 1.76 | .66 |
| K 20 | 3.50 | 1.29 | 3.92 | .97 | 3.42 | .79 | 4.25 | 1.21 | 4.53 | .87 |
| K 21 | 2.21 | 1.14 | 1.92 | .88 | 2.42 | 1.00 | 1.50 | .51 | 1.71 | .77 |
| K 22 | 5.50 | .72 | 4.92 | 1.32 | 5.17 | .72 | 5.45 | .94 | 5.53 | .62 |
| K 23 | 1.62 | .92 | 1.54 | .59 | 2.33 | 1.44 | 1.40 | .60 | 1.29 | .47 |
| K 24 | 4.92 | 1.06 | 4.46 | 1.02 | 4.08 | 1.08 | 4.75 | 1.25 | 5.35 | .70 |
| K 25 | 2.46 | 1.32 | 2.17 | .87 | 3.17 | .94 | 2.05 | .83 | 1.59 | .71 |
| K 26 | 4.79 | 1.14 | 4.67 | 1.31 | 4.08 | 1.16 | 5.15 | .75 | 4.94 | 1.34 |
| K 27 | 2.25 | .94 | 2.08 | .58 | 2.17 | .83 | 2.10 | .79 | 1.71 | .92 |
| K 28 | 4.92 | .88 | 4.71 | .55 | 4.25 | .62 | 4.70 | 1.17 | 4.88 | 1.45 |
| K 29 | 1.79 | .66 | 2.04 | .46 | 2.67 | .98 | 1.75 | .72 | 1.59 | .80 |
| K 30 | 4.50 | .83 | 4.42 | .72 | 3.75 | .97 | 4.85 | 1.14 | 4.65 | 1.37 |
| K 31 | 2.71 | 1.20 | 3.08 | 1.02 | 4.08 | .67 | 2.50 | 1.24 | 2.12 | .99 |
| K 32 | 3.67 | 1.13 | 3.33 | .87 | 2.67 | .49 | 3.85 | 1.39 | 3.88 | 1.32 |
| K 33 | 2.79 | 1.35 | 2.58 | 1.06 | 3.33 | 1.37 | 2.85 | 1.23 | 2.12 | 1.22 |
| K 34 | 3.58 | 1.64 | 3.83 | 1.61 | 2.92 | 1.31 | 3.85 | 1.39 | 3.82 | 1.63 |

## TABLE 3

### Means and Standard Deviation for Palmore by College and Class Pre-Test

| QUESTION | Univ. of Houston Spring | | Univ. of Houston Fall | | Texas Southern Univ. Fall | | UT-Austin Summer | | UT-Austin Fall | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | StdDev | Mean | StdDev | Mean | StdDev | Mean | StdDev | Mean | StdDev |
| P 1 | 2.46 | 1.28 | 2.12 | .80 | 2.50 | 1.24 | 2.48 | 1.04 | 1.94 | .68 |
| P 2 | 4.50 | .83 | 3.96 | 1.43 | 4.00 | 1.21 | 3.91 | 1.24 | 4.13 | 1.41 |
| P 3 | 2.54 | .88 | 2.29 | .91 | 2.67 | 1.07 | 2.39 | .89 | 2.31 | 1.08 |
| P 4 | 4.67 | .92 | 4.63 | .82 | 4.00 | 1.21 | 4.00 | 1.13 | 3.87 | 1.45 |
| P 5 | 2.83 | .96 | 2.42 | .88 | 2.58 | 1.16 | 2.96 | 1.07 | 2.69 | .95 |
| P 6 | 4.96 | .86 | 4.71 | .69 | 4.33 | .78 | 4.83 | .89 | 4.88 | .81 |
| P 7 | 4.25 | 1.62 | 3.83 | 1.40 | 4.58 | 1.00 | 4.00 | 1.48 | 4.63 | .62 |
| P 8 | 3.21 | 1.47 | 3.33 | 1.20 | 3.50 | .90 | 2.61 | 1.08 | 3.69 | 1.14 |
| P 9 | 3.54 | 1.28 | 3.25 | 1.15 | 3.67 | 1.23 | 3.22 | 1.17 | 2.81 | .75 |
| P 10 | 4.63 | .82 | 4.13 | .90 | 4.08 | 1.24 | 4.39 | 1.23 | 4.63 | 1.02 |
| P 11 | 2.96 | 1.23 | 2.96 | .95 | 3.75 | 1.36 | 3.09 | 1.28 | 3.13 | 1.36 |
| P 12 | 3.83 | 1.13 | 3.33 | 1.01 | 3.75 | 1.06 | 3.96 | 1.11 | 3.44 | 1.15 |
| P 13 | 2.17 | 1.09 | 1.96 | .81 | 2.33 | .89 | 2.26 | .81 | 2.00 | .73 |
| P 14 | 4.75 | .79 | 4.25 | 1.07 | 4.50 | .90 | 5.17 | .58 | 4.44 | 1.21 |
| P 15 | 2.71 | 1.37 | 2.33 | 1.13 | 3.17 | 1.19 | 2.61 | 1.23 | 2.06 | .68 |
| P 16 | 2.71 | .95 | 2.79 | .88 | 2.75 | 1.14 | 2.48 | .79 | 2.75 | 1.06 |
| P 17 | 4.13 | 1.19 | 3.71 | .95 | 3.50 | 1.51 | 4.35 | 1.19 | 4.00 | 1.32 |
| P 18 | 3.65 | 1.34 | 3.71 | 1.08 | 3.17 | 1.03 | 3.43 | 1.04 | 3.69 | 1.08 |
| P 19 | 4.96 | 1.12 | 4.75 | 1.03 | 4.25 | 1.29 | 4.65 | 1.37 | 5.13 | .62 |
| P 20 | 2.88 | 1.30 | 3.25 | 1.29 | 3.25 | 1.06 | 3.39 | 1.41 | 3.00 | 1.21 |
| P 21 | 4.13 | 1.12 | 4.08 | 1.14 | 4.58 | .90 | 4.22 | 1.20 | 3.94 | 1.18 |
| P 22 | 4.96 | 1.04 | 4.92 | .65 | 4.83 | .58 | 4.57 | .99 | 4.81 | .75 |
| P 23 | 4.46 | .98 | 3.88 | 1.03 | 4.58 | .79 | 4.74 | 1.01 | 4.50 | .73 |
| P 24 | 3.29 | 1.16 | 3.00 | .83 | 2.67 | .89 | 3.09 | .90 | 3.25 | .86 |
| P 25 | 2.50 | 1.14 | 2.42 | 1.10 | 2.67 | 1.23 | 2.52 | .99 | 2.31 | 1.01 |

## TABLE 4

### Means and Standard Deviation for Palmore by College and Class Post-Test

| QUESTION | Univ. of Houston Spring | | Univ. of Houston Fall | | Texas Southern Univ. Fall | | UT-Austin Summer | | UT-Austin Fall | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | StdDev | Mean | StdDev | Mean | StdDev | Mean | StdDev | Mean | StdDev |
| P 1 | 1.46 | .66 | 1.71 | .55 | 2.42 | 1.24 | 1.35 | .67 | 1.12 | .49 |
| P 2 | 4.00 | 1.67 | 4.54 | 1.28 | 4.58 | .67 | 5.35 | 1.42 | 5.24 | 1.48 |
| P 3 | 2.04 | 1.30 | 1.96 | .55 | 2.17 | .72 | 1.40 | .60 | 1.59 | 1.28 |
| P 4 | 4.62 | 1.35 | 4.92 | .88 | 4.50 | .67 | 5.50 | 1.19 | 5.06 | 1.43 |
| P 5 | 2.38 | .82 | 2.17 | .70 | 2.83 | .94 | 1.60 | .94 | 1.41 | .62 |
| P 6 | 4.58 | .93 | 4.92 | .88 | 4.75 | .62 | 5.00 | 1.78 | 5.18 | 1.47 |
| P 7 | 2.50 | 1.62 | 2.79 | 1.59 | 4.17 | 1.11 | 2.20 | 1.82 | 2.06 | 1.52 |
| P 8 | 4.42 | 1.06 | 3.58 | 1.28 | 3.58 | 1.08 | 5.05 | 1.57 | 4.65 | 1.84 |
| P 9 | 2.63 | 1.24 | 2.25 | .94 | 3.58 | 1.08 | 1.40 | .50 | 1.94 | 1.34 |
| P 10 | 5.08 | 1.02 | 4.71 | .91 | 4.25 | 1.06 | 5.55 | .69 | 5.06 | 1.43 |
| P 11 | 1.88 | .99 | 2.29 | .81 | 3.25 | .87 | 1.60 | .88 | 1.41 | .71 |
| P 12 | 2.50 | 1.14 | 3.08 | 1.14 | 3.58 | 1.00 | 5.00 | .92 | 4.41 | 1.58 |
| P 13 | 1.96 | 1.33 | 1.79 | .59 | 2.42 | .51 | 1.45 | .69 | 1.24 | .56 |
| P 14 | 4.50 | 1.10 | 4.38 | 1.01 | 4.25 | .62 | 5.55 | .60 | 5.24 | 1.48 |
| P 15 | 2.04 | 1.37 | 2.17 | .87 | 3.00 | .95 | 1.55 | .76 | 1.24 | .56 |
| P 16 | 2.96 | 1.12 | 3.54 | .98 | 3.25 | .87 | 4.80 | 1.20 | 4.76 | 1.52 |
| P 17 | 2.96 | 1.27 | 2.58 | 1.02 | 3.83 | 1.03 | 2.00 | 1.17 | 1.41 | .71 |
| P 18 | 4.29 | 1.30 | 4.42 | 1.18 | 3.00 | .74 | 5.45 | .89 | 5.00 | 1.50 |
| P 19 | 4.67 | 1.40 | 4.17 | 1.52 | 4.42 | 1.24 | 4.25 | 1.97 | 3.12 | 2.15 |
| P 20 | 4.26 | 1.25 | 3.25 | 1.51 | 2.42 | 1.44 | 5.60 | .60 | 5.12 | 1.45 |
| P 21 | 3.38 | 1.21 | 3.63 | 1.31 | 4.58 | .90 | 1.90 | 1.17 | 2.59 | 1.70 |
| P 22 | 5.13 | .68 | 4.96 | .75 | 4.50 | 1.09 | 5.55 | .60 | 5.18 | 1.42 |
| P 23 | 4.04 | 1.37 | 4.12 | .99 | 4.58 | .90 | 1.65 | .88 | 1.65 | .86 |
| P 24 | 3.54 | 1.18 | 3.42 | 1.10 | 2.83 | 1.03 | 5.05 | 1.23 | 4.47 | 1.59 |
| P 25 | 2.17 | 1.24 | 2.50 | 1.18 | 2.33 | .89 | 2.10 | 1.41 | 2.53 | 1.62 |

## TABLE 5

### Means and Standard Deviation for Baylor Adjective Checklist
### by College and Class
### Pre-Test

| QUESTION | Univ. of Houston Spring | | Univ. of Houston Fall | | Texas Southern Univ. Fall | | UT-Austin Summer | | UT-Austin Fall | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | StdDev | Mean | StdDev | Mean | StdDev | Mean | StdDev | Mean | StdDev |
| T 1 | 2.58 | .83 | 2.50 | .78 | 2.67 | .98 | 2.91 | .85 | 2.25 | .58 |
| T 2 | 3.25 | .90 | 3.13 | .80 | 3.00 | .60 | 3.04 | .82 | 3.38 | .81 |
| T 3 | 2.88 | .85 | 2.92 | .83 | 2.92 | .90 | 2.65 | .88 | 3.13 | .96 |
| T 4 | 3.25 | .99 | 3.54 | .78 | 3.17 | 1.03 | 3.13 | 1.06 | 3.75 | .93 |
| T 5 | 2.21 | 1.06 | 1.92 | .58 | 2.08 | .90 | 2.35 | .78 | 1.87 | .50 |
| T 6 | 2.43 | 1.12 | 2.12 | .68 | 0.00 | 0.00 | 2.61 | .89 | 1.94 | .68 |
| T 7 | 3.54 | .72 | 3.75 | .53 | 0.00 | 0.00 | 3.70 | .76 | 3.56 | 1.21 |
| T 8 | 3.57 | .66 | 3.50 | .72 | 3.25 | .62 | 3.35 | .78 | 4.00 | .63 |
| T 9 | 2.46 | 1.02 | 1.96 | .62 | 2.58 | 1.00 | 2.39 | .94 | 2.13 | .62 |
| T 10 | 3.87 | .87 | 4.13 | .54 | 3.75 | .75 | 3.52 | .79 | 4.37 | .81 |
| T 11 | 3.61 | .94 | 3.83 | .64 | 3.17 | .72 | 3.43 | .79 | 3.69 | .79 |
| T 12 | 2.50 | 1.02 | 2.54 | 1.22 | 2.83 | 1.03 | 2.83 | .98 | 2.19 | .91 |
| T 13 | 2.54 | .78 | 2.58 | .78 | 2.75 | 1.14 | 3.13 | .81 | 2.75 | .86 |
| T 14 | 3.87 | .85 | 3.88 | .85 | 3.83 | .83 | 3.57 | .79 | 4.00 | .97 |
| T 15 | 2.54 | .72 | 2.46 | .66 | 2.75 | .97 | 2.87 | 1.01 | 2.63 | 1.02 |
| T 16 | 3.04 | .81 | 3.21 | .72 | 2.92 | .90 | 3.00 | .95 | 3.44 | .81 |
| T 17 | 2.46 | .93 | 2.25 | .94 | 3.00 | 1.28 | 2.61 | .99 | 2.38 | .96 |
| T 18 | 2.88 | 1.12 | 2.71 | 1.08 | 3.25 | 1.06 | 2.70 | 1.11 | 2.81 | 1.05 |
| T 19 | 2.37 | .97 | 2.17 | .70 | 2.25 | .97 | 2.65 | .83 | 1.87 | .50 |
| T 20 | 3.13 | .80 | 3.42 | .97 | 3.50 | .90 | 3.17 | .89 | 3.44 | .89 |
| T 21 | 2.42 | .97 | 2.46 | .83 | 2.50 | 1.17 | 2.35 | .88 | 2.38 | .62 |
| T 22 | 2.54 | .78 | 2.50 | .93 | 2.67 | .89 | 2.74 | .86 | 2.38 | .72 |
| T 23 | 2.25 | .90 | 2.04 | .69 | 2.58 | 1.00 | 2.57 | .99 | 1.94 | .44 |
| T 24 | 1.83 | 1.05 | 1.71 | .75 | 2.25 | .97 | 1.78 | .74 | 1.31 | .48 |
| T 25 | 2.88 | 1.12 | 2.92 | 1.06 | 3.25 | .87 | 3.48 | .95 | 2.81 | 1.17 |
| T 26 | 2.26 | .92 | 2.33 | .82 | 2.17 | 1.03 | 2.70 | 1.06 | 2.00 | .73 |
| T 27 | 3.67 | .76 | 3.54 | .66 | 3.50 | .67 | 3.61 | .66 | 3.87 | .72 |
| T 28 | 1.96 | .75 | 2.00 | .83 | 2.33 | 1.07 | 2.35 | .93 | 1.94 | .57 |
| T 29 | 2.29 | .81 | 2.38 | 1.01 | 1.92 | 1.00 | 2.26 | .81 | 2.81 | .91 |
| T 30 | 3.33 | 1.01 | 3.48 | 1.12 | 3.25 | 1.14 | 3.39 | .99 | 3.69 | .79 |

## TABLE 5 continued

### Means and Standard Deviation for Baylor Adjective Checklist by College and Class
### Pre-Test

| QUESTION | Univ. of Houston Spring | | Univ. of Houston Fall | | Texas Southern Univ. Fall | | UT-Austin Summer | | UT-Austin Fall | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | StdDev | Mean | StdDev | Mean | StdDev | Mean | StdDev | Mean | StdDev |
| T 31 | 3.75 | .79 | 3.87 | .63 | 3.58 | .90 | 3.52 | .85 | 4.00 | .82 |
| T 32 | 3.65 | .98 | 4.04 | .56 | 3.42 | .51 | 3.43 | .79 | 3.75 | .77 |
| T 33 | 2.42 | .97 | 2.39 | .99 | 2.25 | 1.36 | 2.65 | .78 | 2.19 | .66 |
| T 34 | 1.92 | .88 | 1.65 | .88 | 2.00 | 1.21 | 2.13 | .76 | 1.62 | .62 |
| T 35 | 3.35 | .78 | 3.30 | .88 | 2.42 | 1.08 | 3.09 | .85 | 3.25 | .93 |
| T 36 | 3.64 | .85 | 3.91 | .67 | 3.33 | 1.30 | 3.96 | .77 | 3.94 | 1.00 |
| T 37 | 2.00 | .66 | 1.78 | .74 | 2.08 | 1.08 | 1.91 | .73 | 1.87 | .89 |
| T 38 | 3.75 | .68 | 3.30 | 1.02 | 3.50 | .80 | 3.52 | .99 | 4.13 | .81 |
| T 39 | 3.87 | .76 | 3.96 | .47 | 3.58 | .67 | 3.87 | .34 | 4.25 | .45 |
| T 40 | 2.04 | .64 | 1.83 | .65 | 2.25 | 1.14 | 2.22 | .74 | 1.75 | .58 |
| T 41 | 2.08 | .83 | 1.83 | .78 | 2.58 | 1.00 | 2.30 | .70 | 2.25 | .86 |

## TABLE 6

### Means and Standard Deviation for Baylor Adjective Checklist by College and Class Post-Test

| QUESTION | Univ. of Houston Spring | | Univ. of Houston Fall | | Texas Southern Univ. Fall | | UT-Austin Summer | | UT-Austin Fall | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | StdDev | Mean | StdDev | Mean | StdDev | Mean | StdDev | Mean | StdDev |
| T 1 | 2.04 | .46 | 1.87 | .34 | 2.67 | .65 | 2.00 | .32 | 1.88 | .78 |
| T 2 | 3.54 | .83 | 3.67 | .56 | 2.83 | .58 | 4.00 | .79 | 3.94 | 1.09 |
| T 3 | 3.92 | .78 | 3.62 | .65 | 2.58 | .79 | 3.75 | .64 | 3.59 | 1.18 |
| T 4 | 3.96 | .62 | 3.79 | .66 | 3.17 | .94 | 3.70 | .80 | 3.65 | 1.11 |
| T 5 | 1.83 | .87 | 2.00 | .42 | 2.42 | .90 | 1.65 | .99 | 1.29 | .59 |
| T 6 | 2.17 | .92 | 1.87 | .61 | 0.00 | 0.00 | 1.90 | 1.12 | 1.47 | .62 |
| T 7 | 4.00 | .72 | 3.92 | .65 | 0.00 | 0.00 | 3.95 | 1.15 | 4.24 | 1.25 |
| T 8 | 3.75 | .85 | 3.75 | .53 | 3.42 | .79 | 3.85 | 1.14 | 3.94 | 1.14 |
| T 9 | 1.96 | .69 | 2.04 | .55 | 2.33 | .89 | 1.80 | .77 | 1.71 | .69 |
| T 10 | 4.04 | .75 | 4.00 | .29 | 3.50 | .67 | 4.45 | .60 | 4.18 | 1.29 |
| T 11 | 4.13 | .74 | 3.75 | .53 | 3.17 | .58 | 4.20 | .62 | 3.94 | 1.20 |
| T 12 | 2.29 | .91 | 2.17 | .82 | 2.75 | 1.22 | 2.10 | .85 | 1.82 | 1.01 |
| T 13 | 2.54 | .83 | 2.67 | 1.20 | 2.83 | 1.11 | 2.50 | 1.19 | 2.24 | 1.09 |
| T 14 | 4.08 | .83 | 3.83 | 1.01 | 3.67 | .89 | 4.15 | .75 | 3.94 | 1.43 |
| T 15 | 2.33 | .82 | 2.04 | .75 | 2.33 | .89 | 1.70 | .80 | 1.59 | .94 |
| T 16 | 3.50 | 1.06 | 3.42 | .65 | 2.75 | 1.06 | 4.35 | .67 | 3.76 | 1.60 |
| T 17 | 2.04 | .91 | 1.92 | .58 | 2.75 | 1.22 | 1.70 | .66 | 1.53 | .62 |
| T 18 | 2.54 | .93 | 2.25 | .68 | 2.58 | 1.00 | 2.05 | .60 | 2.00 | .94 |
| T 19 | 1.92 | .72 | 2.00 | .78 | 2.50 | 1.00 | 1.65 | .59 | 1.35 | .61 |
| T 20 | 3.50 | 1.06 | 3.63 | .82 | 3.25 | .97 | 4.15 | .67 | 3.82 | 1.19 |
| T 21 | 2.42 | .97 | 2.46 | 1.06 | 2.58 | 1.08 | 2.00 | 1.26 | 1.71 | .85 |
| T 22 | 2.21 | .72 | 2.17 | .70 | 2.83 | 1.03 | 1.80 | .41 | 1.65 | .86 |
| T 23 | 1.87 | .85 | 1.71 | .62 | 2.58 | 1.08 | 1.50 | .51 | 1.29 | .59 |
| T 24 | 1.75 | 1.11 | 1.46 | .51 | 2.33 | 1.07 | 1.35 | .49 | 1.12 | .49 |
| T 25 | 2.96 | 1.02 | 2.75 | .99 | 3.42 | 1.00 | 2.45 | .89 | 2.47 | 1.33 |
| T 26 | 2.12 | .74 | 1.96 | .62 | 2.67 | 1.07 | 1.65 | .59 | 1.65 | .79 |
| T 27 | 3.96 | .81 | 4.00 | .29 | 3.50 | .67 | 4.35 | .59 | 4.00 | 1.27 |
| T 28 | 1.87 | .74 | 1.92 | .65 | 2.17 | .72 | 1.70 | .80 | 1.35 | .61 |
| T 29 | 2.87 | 1.03 | 2.92 | .78 | 2.08 | .90 | 2.55 | 1.23 | 2.82 | 1.33 |
| T 30 | 3.75 | 1.11 | 3.29 | 1.16 | 3.42 | 1.16 | 3.35 | 1.23 | 3.41 | 1.12 |

## TABLE 6 continued

### Means and Standard Deviation for Baylor Adjective Checklist
### by College and Class
### Post-Test

| QUESTION | Univ. of Houston Spring | | Univ. of Houston Fall | | Texas Southern Univ. Fall | | UT-Austin Summer | | UT-Austin Fall | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | StdDev | Mean | StdDev | Mean | StdDev | Mean | StdDev | Mean | StdDev |
| T 31 | 4.08 | 1.02 | 4.17 | .48 | 3.42 | .79 | 4.35 | .67 | 4.00 | 1.27 |
| T 32 | 4.09 | 1.08 | 3.96 | .62 | 2.50 | 1.24 | 4.15 | .75 | 3.71 | 1.53 |
| T 33 | 2.00 | .66 | 2.04 | .91 | 2.00 | .74 | 2.00 | .73 | 1.71 | .92 |
| T 34 | 1.54 | .59 | 1.46 | .51 | 2.75 | .75 | 1.45 | .83 | 1.18 | .53 |
| T 35 | 3.75 | .90 | 3.29 | .91 | 3.25 | 1.42 | 3.50 | 1.15 | 3.53 | 1.37 |
| T 36 | 4.04 | .95 | 4.04 | .69 | 2.25 | .62 | 4.05 | 1.19 | 4.06 | 1.20 |
| T 37 | 1.83 | .83 | 1.83 | .87 | 3.25 | 1.14 | 1.60 | .94 | 1.47 | .80 |
| T 38 | 3.67 | 1.13 | 3.62 | 1.13 | 3.33 | .78 | 4.25 | .97 | 3.59 | 1.42 |
| T 39 | 4.08 | .83 | 3.96 | .55 | 2.25 | 1.22 | 4.60 | .50 | 4.29 | 1.21 |
| T 40 | 2.04 | 1.04 | 1.96 | .95 | 2.50 | .67 | 1.55 | .60 | 1.24 | .56 |
| T 41 | 1.87 | .54 | 1.83 | .64 | 3.25 | .62 | 1.55 | .60 | 1.47 | .72 |

## TABLE 7

### Means and Standard Deviation for Kogan, Palmore and Adjective Checklist by College and Class

| VARIABLE | Univ. of Houston Spring | | Univ. of Houston Fall | | Texas Southern Univ. Fall | | UT-Austin Summer | | UT-Austin Fall | | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pre | Post | Pre | Post | Pre | Post | Pre | Post | Pre | Post | |
| Kogan Positive | | | | | | | | | | | |
| Mean | 71.75 | 79.29 | 70.08 | 74.29 | 69.00 | 68.75 | 69.00 | 79.50 | 74.50 | 82.94 | 13.91 |
| S.D. | 11.41 | 10.41 | 6.30 | 6.82 | 5.12 | 7.97 | 7.35 | 11.12 | 8.08 | 9.07 | 8.34 |
| Kogan Negative | | | | | | | | | | | |
| Mean | 44.21 | 37.50 | 41.00 | 38.29 | 51.75 | 49.42 | 44.04 | 32.90 | 38.50 | 29.24 | 40.69 |
| S.D. | 11.95 | 10.63 | 7.89 | 7.20 | 8.52 | 9.26 | 9.27 | 8.85 | 4.58 | 8.69 | 8.68 |
| Palmore Anti-Aging | | | | | | | | | | | |
| Mean | 41.00 | 37.00 | 39.00 | 35.00 | 39.00 | 37.00 | 41.00 | 28.00 | 37.00 | 28.00 | 38.20 |
| S.D. | 6.00 | 7.00 | 7.00 | 6.00 | 7.00 | 6.00 | 8.00 | 6.00 | 7.00 | 11.00 | 7.10 |
| Palmore Pro-Aging | | | | | | | | | | | |
| Mean | 13.00 | 13.00 | 13.00 | 13.00 | 12.00 | 14.00 | 13.00 | 12.00 | 14.00 | 12.00 | 12.90 |
| S.D. | 2.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 2.00 | 2.00 | 4.00 | 3.00 | 3.70 |

## Table 8
## Two-Tail Probability Values (ρ = < .05) by College and Class: Comparison of Pre- and Post-Data
## Kogan (K), Palmore (P), and Adjective Checklist (T)

| Question | Description | UH-Spring n=22 | UH-Fall n=24 | TSU | UT-Summer n=23 | UT-Fall n=16 |
|---|---|---|---|---|---|---|
| K1 | It would probably be better if most old people lived in residential units with people their own age. | | | | .036 | .043 |
| K2 | It would probably be better if most old people lived in residential units that also housed younger people. | | | | .001 | |
| K3 | There is something different about most old people: it's hard to figure out what makes them tick. | | | | .004 | |
| K4 | Most old people are really no different from anybody else: they're as easy to understand as younger people. | .004 | | | .008 | |
| K5 | Most old people get set in their ways and are unable to change. | .001 | .007 | | .000 | .001 |
| K6 | Most old people are capable of new adjustments when the situation demands it. | .006 | .002 | | .000 | .001 |
| K7 | Most old people would prefer to quit work as soon as pensions or their children can support them. | | | | .001 | .014 |
| K8 | Most old people would prefer to continue working just as long as they possibly can rather than be dependent on anybody. | .048 | .050 | | | |
| K9 | Most old people tend to let their homes become shabby and unattractive. | | | | .002 | |
| K10 | Most old people can generally be counted on to maintain a clean, attractive home. | | | | .001 | |
| K11 | It is foolish to claim that wisdom comes with old age. | | | | | |
| K12 | People grow wiser with the coming of old age. | | | | | |
| K13 | Old people have too much power in business and politics. | | | | | |
| K14 | Old people should have more power in business and politics. | .011 | | | | |
| K15 | Most old people make one feel at ease. | | | | | |
| K16 | Most old people are very relaxing to be with. | | | | .008 | |

| Question | Description | UH-Spring | UH-Fall | TSU | UT-Summer | UT-Fall |
|---|---|---|---|---|---|---|
| K17 | Most old people bore others by their insistence on talking about the "good old days." | | | | .001 | |
| K18 | One of the most interesting and entertaining qualities of most old people is their accounts of their past experiences. | | | | | |
| K19 | Most old people spend too much time prying into the affairs of others and giving unsought advice. | | | | .002 | |
| K20 | Most old people tend to keep to themselves and give advice only when asked. | | .043 | | .004 | .008 |
| K21 | If old people expect to be liked, their first step is to get rid of their irritating faults. | | | | .007 | |
| K22 | When you think about it, old people have the same faults as anybody else. | | | | | |
| K23 | In order to maintain a nice residential neighborhood, it would be best if too many old people did not live in it. | | | | | |
| K24 | You can count on finding a nice residential neighborhood when there is a sizable number of old people living in it. | .031 | | | | |
| K25 | There are a few exceptions, but in general most old people are pretty much alike. | | | | .018 | .027 |
| K26 | It is evident that most old people are very different from one another. | | | | .006 | |
| K27 | Most old people should be more concerned with their personal appearance; they're too untidy. | | | | .005 | |
| K28 | Most old people seem to be quite clean and neat in their personal appearance. | .016 | .000 | | | |
| K29 | Most old people are irritable, grouchy, and unpleasant. | | | | .001 | |
| K30 | Most old people are cheerful, agreeable, and good humored. | | | | .020 | |
| K31 | Most old people are constantly complaining about the behavior of the younger generation. | | | | .001 | |
| K32 | One seldom hears old people complaining about the behavior of the younger generation. | | | | | |
| K33 | Most old people make excessive demands for love and reassurance. | | | | | |
| K34 | Most old people need no more love and reassurance than anyone else. | | | | .028 | |
| P1 | The majority of old people (past age 65) are senile (i.e., defective memory, disoriented, or demented.) | .010 | .038 | | .000 | .019 |
| P2 | All five senses tend to decline in old age. | | | | .001 | .021 |
| P3 | Most old people have no interest in, or capacity for, sexual relations. | | .057 | | .000 | |

| Question | Description | UH-Spring | UH-Fall | TSU | UT-Summer | UT-Fall |
|---|---|---|---|---|---|---|
| P4 | Lung capacity tends to decline in old age. | | | | .000 | .002 |
| P5 | The majority of old people feel miserable most of the time. | | | | .000 | .002 |
| P6 | Physical strength tends to decline in old age. | | | | .002 | |
| P7 | At least one-tenth of the aged are living in long-stay institutions (i.e., nursing homes, mental hospitals, homes for the aged, etc.). | .005 | .018 | | .004 | .000 |
| P8 | Aged drivers have fewer accidents per person than drivers under age 65. | .003 | | | .000 | .010 |
| P9 | Most older workers cannot work as effectively as younger workers. | .002 | .000 | | .000 | |
| P10 | About 80% of the aged are healthy enough to carry out normal activities. | | .036 | | .000 | |
| P11 | Most old people are set in their ways and unable to change. | .011 | .003 | | .000 | .009 |
| P12 | Old people usually take longer to learn something new. | .001 | | | .003 | .053 |
| P13 | It is almost impossible for most old people to learn new things. | | | | .000 | .033 |
| P14 | The reaction time of most old people tends to be slower than reaction time of younger people. | | | | | .026 |
| P15 | In general, most old people are pretty much alike. | | | | .001 | .006 |
| P16 | The majority of old people are seldom bored. | | .019 | | .000 | .000 |
| P17 | The majority of old people are socially isolated and lonely. | .003 | .000 | | .000 | .000 |
| P18 | Older workers have fewer accidents than younger workers. | | .014 | | .000 | .006 |
| P19 | Over 15% of the U.S. population are now age 65 or over. | | | | | .004 |
| P20 | Most medical practitioners tend to give low priority to the aged. | .000 | | | .000 | .000 |
| P21 | The majority of older people have incomes below the poverty level (as defined by the Federal Government). | .016 | | | .000 | |
| P22 | The majority of old people are working or would like to have some kind of work to do (including housework and volunteer work). | | | | .000 | .023 |
| P23 | Older people tend to become more religious as they age. | | | | .000 | .000 |
| P24 | The majority of older people are seldom irritated or angry. | | | | .000 | .009 |
| P25 | The health and socioeconomic status of older people (compared to younger people) in the year 2000 will probably be about the same as now. | | | | | |
| T1 | Absent-minded | .004 | | | .000 | |
| T2 | Active | | | | .000 | .005 |
| T3 | Adaptable | .000 | | | .000 | |
| T4 | Alert | .004 | | | .010 | |

| Question | Description | UH-Spring | UH-Fall | TSU | UT-Summer | UT-Fall |
|---|---|---|---|---|---|---|
| T5 | Bitter | | | | .001 | .029 |
| T6 | Cheerful | | | | .021 | |
| T7 | Confused | .057 | | | .008 | .007 |
| T8 | Considerate | | | | .005 | |
| T9 | Cooperative | .057 | | | .006 | |
| T10 | Demanding | | | | .000 | |
| T11 | Dependent | | | | .002 | |
| T12 | Dignified | | | | .015 | |
| T13 | Dissatisfied | | | | .040 | |
| T14 | Enthusiastic | | | | .005 | |
| T15 | Fault-finding | | | | .000 | .043 |
| T16 | Fearful | | | | .000 | |
| T17 | Gloomy | | | | .001 | .028 |
| T18 | Independent | | | | .022 | |
| T19 | Meek | | | | .000 | |
| T20 | Moody | | | | .000 | |
| T21 | Nagging | | | | | |
| T22 | Obnoxious | .050 | .029 | | .000 | |
| T23 | Opinionated | | .050 | | .000 | .006 |
| T24 | Pessimistic | | | | .013 | |
| T25 | Pleasant | | | | .010 | |
| T26 | Quarrelsome | | | | .000 | |
| T27 | Quick | | .008 | | .000 | |
| T28 | Reflective | | | | .002 | |
| T29 | Reliable | | | | | |
| T30 | Resourceful | | .016 | | | |
| T31 | Rigid | | | | | |
| T32 | Rude | | | | | |
| T33 | Tactful | | | | | |
| T34 | Trusting | | | | | |
| T35 | Unkempt | | | | | |
| T36 | Unselfish | | | | | |
| T37 | Warm | | | | | |
| T38 | Whiny | | | | | |
| T39 | Withdrawn | | | | | |

## Table 9
## Analysis of Variance Data: Significance of F ($\rho = < .05$) and R Squared Between all Colleges and Classes
## Pre- Kogan (K), Palmore (P), and Adjective Checklist (T)

| Question | Description | Sign. F | $R^2$ |
|---|---|---|---|
| K1 | It would probably be better if most old people lived in residential units with people their own age. | | |
| K2 | It would probably be better if most old people lived in residential units that also housed younger people. | | |
| K3 | There is something different about most old people: it's hard to figure out what makes them tick. | .0004 | .0397 |
| K4 | Most old people are really no different from anybody else: they're as easy to understand as younger people. | | |
| K5 | Most old people get set in their ways and are unable to change. | | |
| K6 | Most old people are capable of new adjustments when the situation demands it. | | |
| K7 | Most old people would prefer to quit work as soon as pensions or their children can support them. | | |
| K8 | Most old people would prefer to continue working just as long as they possibly can rather than be dependent on anybody. | | |
| K9 | Most old people tend to let their homes become shabby and unattractive. | .0463 | .0339 |
| K10 | Most old people can generally be counted on to maintain a clean, attractive home. | | |
| K11 | It is foolish to claim that wisdom comes with old age. | | |
| K12 | People grow wiser with the coming of old age. | | |
| K13 | Old people have too much power in business and politics. | | |
| K14 | Old people should have more power in business and politics. | .0336 | .0207 |
| K15 | Most old people make one feel at ease. | .0038 | .0162 |
| K16 | Most old people are very relaxing to be with. | .0134 | .0261 |
| K17 | Most old people bore others by their insistence on talking about the "good old days." | | |
| K18 | One of the most interesting and entertaining qualities of most old people is their accounts of their past experiences. | | |
| K19 | Most old people spend too much time prying into the affairs of others and giving unsought advice. | | |
| K20 | Most old people tend to keep to themselves and give advice only when asked. | | |
| K21 | If old people expect to be liked, their first step is to get rid of their irritating faults. | | |
| K22 | When you think about it, old people have the same faults as anybody else. | | |
| K23 | In order to maintain a nice residential neighborhood, it would be best if too many old people did not live in it. | | |
| K24 | You can count on finding a nice residential neighborhood when there is a sizable number of old people living in it. | | |

| Question | Description | Sign.F | $R^2$ |
|---|---|---|---|
| K25 | There are a few exceptions, but in general most old people are pretty much alike. | | |
| K26 | It is evident that most old people are very different from one another. | | |
| K27 | Most old people should be more concerned with their personal appearance; they're too untidy. | | |
| K28 | Most old people seem to be quite clean and neat in their personal appearance. | | |
| K29 | Most old people are irritable, grouchy, and unpleasant. | .0259 | .0047 |
| K30 | Most old people are cheerful, agreeable, and good humored. | | |
| K31 | Most old people are constantly complaining about the behavior of the younger generation. | .0312 | .0375 |
| K32 | One seldom hears old people complaining about the behavior of the younger generation. | | |
| K33 | Most old people make excessive demands for love and reassurance. | | |
| K34 | Most old people need no more love and reassurance than anyone else. | | |
| P1 | The majority of old people (past age 65) are senile (i.e., defective memory, disoriented, or demented.) | | |
| P2 | All five senses tend to decline in old age. | | |
| P3 | Most old people have no interest in, or capacity for, sexual relations. | | |
| P4 | Lung capacity tends to decline in old age. | .0474 | .0001 |
| P5 | The majority of old people feel miserable most of the time. | | |
| P6 | Physical strength tends to decline in old age. | | |
| P7 | At least one-tenth of the aged are living in long-stay institutions (i.e., nursing homes, mental hospitals, homes for the aged, etc.). | | |
| P8 | Aged drivers have fewer accidents per person than drivers under age 65. | | |
| P9 | Most older workers cannot work as effectively as younger workers. | | |
| P10 | About 80% of the aged are healthy enough to carry out normal activities. | | |
| P11 | Most old people are set in their ways and unable to change. | | |
| P12 | Old people usually take longer to learn something new. | | |
| P13 | It is almost impossible for most old people to learn new things. | | |
| P14 | The reaction time of most old people tends to be slower than reaction time of younger people. | .0126 | .0252 |
| P15 | In general, most old people are pretty much alike. | | |
| P16 | The majority of old people are seldom bored. | | |
| P17 | The majority of old people are socially isolated and lonely. | | |
| P18 | Older workers have fewer accidents than younger workers. | | |
| P19 | Over 15% of the U.S. population are now age 65 or over. | | |
| P20 | Most medical practitioners tend to give low priority to the aged. | | |

| Question | Description | Sign.F | $R^2$ |
|---|---|---|---|
| P21 | The majority of older people have incomes below the poverty level (as defined by the Federal Government). | | |
| P22 | The majority of old people are working or would like to have some kind of work to do (including housework and volunteer work). | | |
| P23 | Older people tend to become more religious as they age. | .0315 | .0364 |
| P24 | The majority of older people are seldom irritated or angry. | | |
| P25 | The health and socioeconomic status of older people (compared to younger people) in the year 2000 will probably be about the same as now. | | |
| T1 | Absent-minded | | |
| T2 | Active | | |
| T3 | Adaptable | | |
| T4 | Alert | | |
| T5 | Bitter | | |
| T6 | Cheerful | | |
| T7 | Confused | | |
| T8 | Considerate | .0340 | .0178 |
| T9 | Cooperative | | |
| T10 | Demanding | .0080 | .0006 |
| T11 | Dependent | | |
| T12 | Dignified | | |
| T13 | Dissatisfied | | |
| T14 | Enthusiastic | | |
| T15 | Fault-finding | | |
| T16 | Fearful | | |
| T17 | Gloomy | | |
| T18 | Independent | | |
| T19 | Meek | .0361 | .0001 |
| T20 | Moody | | |
| T21 | Nagging | | |
| T22 | Obnoxious | | |
| T23 | Opinionated | | |
| T24 | Pessimistic | | |
| T25 | Pleasant | | |
| T26 | Quarrelsome | | |
| T27 | Quick | | |
| T28 | Reflective | | |
| T29 | Reliable | | |
| T30 | Resourceful | | |
| T31 | Rigid | | |
| T32 | Rude | | |
| T33 | Tactful | | |
| T34 | Trusting | | |
| T35 | Unkempt | | |
| T36 | Unselfish | | |
| T37 | Warm | | |
| T38 | Whiny | | |
| T39 | Withdrawn | | |

## Table 10
## Analysis of Variance Data: Significance of F ($\rho$ = < .05) and R Squared Between all Colleges and Classes
## Post- Kogan (K), Palmore (P), and Adjective Checklist (T)

| Question | Description | Sign. F | $R^2$ |
|---|---|---|---|
| K1 | It would probably be better if most old people lived in residential units with people their own age. | .0476 | .0231 |
| K2 | It would probably be better if most old people lived in residential units that also housed younger people. | .0077 | .1085 |
| K3 | There is something different about most old people: it's hard to figure out what makes them tick. | .0101 | .0142 |
| K4 | Most old people are really no different from anybody else: they're as easy to understand as younger people. | .0030 | .0883 |
| K5 | Most old people get set in their ways and are unable to change. | .0001 | .0823 |
| K6 | Most old people are capable of new adjustments when the situation demands it. | .0070 | .0366 |
| K7 | Most old people would prefer to quit work as soon as pensions or their children can support them. | .0171 | .0028 |
| K8 | Most old people would prefer to continue working just as long as they possibly can rather than be dependent on anybody. | | |
| K9 | Most old people tend to let their homes become shabby and unattractive. | .0019 | .0058 |
| K10 | Most old people can generally be counted on to maintain a clean, attractive home. | .0218 | .0001 |
| K11 | It is foolish to claim that wisdom comes with old age. | | |
| K12 | People grow wiser with the coming of old age. | | |
| K13 | Old people have too much power in business and politics. | | |
| K14 | Old people should have more power in business and politics. | .0008 | .1177 |
| K15 | Most old people make one feel at ease. | .0000 | .1083 |
| K16 | Most old people are very relaxing to be with. | .0015 | .1056 |
| K17 | Most old people bore others by their insistence on talking about the "good old days." | | |
| K18 | One of the most interesting and entertaining qualities of most old people is their accounts of their past experiences. | | |
| K19 | Most old people spend too much time prying into the affairs of others and giving unsought advice. | .0183 | .0035 |
| K20 | Most old people tend to keep to themselves and give advice only when asked. | .0411 | .0002 |
| K21 | If old people expect to be liked, their first step is to get rid of their irritating faults. | .0121 | .0028 |
| K22 | When you think about it, old people have the same faults as anybody else. | | |
| K23 | In order to maintain a nice residential neighborhood, it would be best if too many old people did not live in it. | .0165 | .0125 |
| K24 | You can count on finding a nice residential neighborhood when there is a sizable number of old people living in it. | .0367 | .0659 |

| Question | Description | Sign.F | R$^2$ |
|---|---|---|---|
| K25 | There are a few exceptions, but in general most old people are pretty much alike. | .0027 | .0003 |
| K26 | It is evident that most old people are very different from one another. | .0284 | .0153 |
| K27 | Most old people should be more concerned with their personal appearance; they're too untidy. | | |
| K28 | Most old people seem to be quite clean and neat in their personal appearance. | | |
| K29 | Most old people are irritable, grouchy, and unpleasant. | .0014 | .0532 |
| K30 | Most old people are cheerful, agreeable, and good humored. | .0082 | .0221 |
| K31 | Most old people are constantly complaining about the behavior of the younger generation. | .0002 | .0531 |
| K32 | One seldom hears old people complaining about the behavior of the younger generation. | .0057 | .0463 |
| K33 | Most old people make excessive demands for love and reassurance. | | |
| K34 | Most old people need no more love and reassurance than anyone else. | | |
| P1 | The majority of old people (past age 65) are senile (i.e., defective memory, disoriented, or demented.) | .0002 | .0576 |
| P2 | All five senses tend to decline in old age. | .0040 | .0039 |
| P3 | Most old people have no interest in, or capacity for, sexual relations. | | |
| P4 | Lung capacity tends to decline in old age. | .0225 | .0004 |
| P5 | The majority of old people feel miserable most of the time. | .0002 | .0023 |
| P6 | Physical strength tends to decline in old age. | .0010 | .0025 |
| P7 | At least one-tenth of the aged are living in long-stay institutions (i.e., nursing homes, mental hospitals, homes for the aged, etc.). | .0079 | .0370 |
| P8 | Aged drivers have fewer accidents per person than drivers under age 65. | .0004 | .0732 |
| P9 | Most older workers cannot work as effectively as younger workers. | .0000 | .0005 |
| P10 | About 80% of the aged are healthy enough to carry out normal activities. | .0004 | .0525 |
| P11 | Most old people are set in their ways and unable to change. | .0000 | .0838 |
| P12 | Old people usually take longer to learn something new. | .0000 | .0042 |
| P13 | It is almost impossible for most old people to learn new things. | .0042 | .0011 |
| P14 | The reaction time of most old people tends to be slower than reaction time of younger people. | .0000 | .0227 |
| P15 | In general, most old people are pretty much alike. | .0002 | .0295 |
| P16 | The majority of old people are seldom bored. | .0000 | .0000 |
| P17 | The majority of old people are socially isolated and lonely. | .0000 | .0034 |
| P18 | Older workers have fewer accidents than younger workers. | .0000 | .0153 |
| P19 | Over 15% of the U.S. population are now age 65 or over. | | |
| P20 | Most medical practitioners tend to give low priority to the aged. | .0000 | .1228 |
| P21 | The majority of older people have incomes below the poverty level (as defined by the Federal Government). | .0000 | .0256 |

| Question | Description | Sign.F | $R^2$ |
|---|---|---|---|
| P22 | The majority of old people are working or would like to have some kind of work to do (including housework and volunteer work). | .0009 | .0328 |
| P23 | Older people tend to become more religious as they age. | .0000 | .0328 |
| P24 | The majority of older people are seldom irritated or angry. | .0000 | .0206 |
| P25 | The health and socioeconomic status of older people (compared to younger people) in the year 2000 will probably be about the same as now. | | |
| T1 | Absent-minded | .0001 | .0000 |
| T2 | Active | .0000 | .0079 |
| T3 | Adaptable | .0000 | .0579 |
| T4 | Alert | .0351 | .0226 |
| T5 | Bitter | .0086 | .0332 |
| T6 | Cheerful | .0880 | .0087 |
| T7 | Confused | .0861 | .0122 |
| T8 | Considerate | .0142 | .0060 |
| T9 | Cooperative | | |
| T10 | Demanding | .0002 | .0186 |
| T11 | Dependent | .0001 | .0892 |
| T12 | Dignified | | |
| T13 | Dissatisfied | | |
| T14 | Enthusiastic | | |
| T15 | Fault-finding | | |
| T16 | Fearful | .0000 | .0331 |
| T17 | Gloomy | .0015 | .0036 |
| T18 | Independent | | |
| T19 | Meek | .0048 | .0246 |
| T20 | Moody | .0127 | .0005 |
| T21 | Nagging | | |
| T22 | Obnoxious | .0014 | .0097 |
| T23 | Opinionated | .0002 | .0082 |
| T24 | Pessimistic | .0017 | .0000 |
| T25 | Pleasant | | |
| T26 | Quarrelsome | .0006 | .0023 |
| T27 | Quick | .0067 | .0054 |
| T28 | Reflective | | |
| T29 | Reliable | | |
| T30 | Resourceful | | |
| T31 | Rigid | | |
| T32 | Rude | | |
| T33 | Tactful | | |
| T34 | Trusting | | |
| T35 | Unkempt | | |
| T36 | Unselfish | | |
| T37 | Warm | | |
| T38 | Whiny | | |
| T39 | Withdrawn | | |